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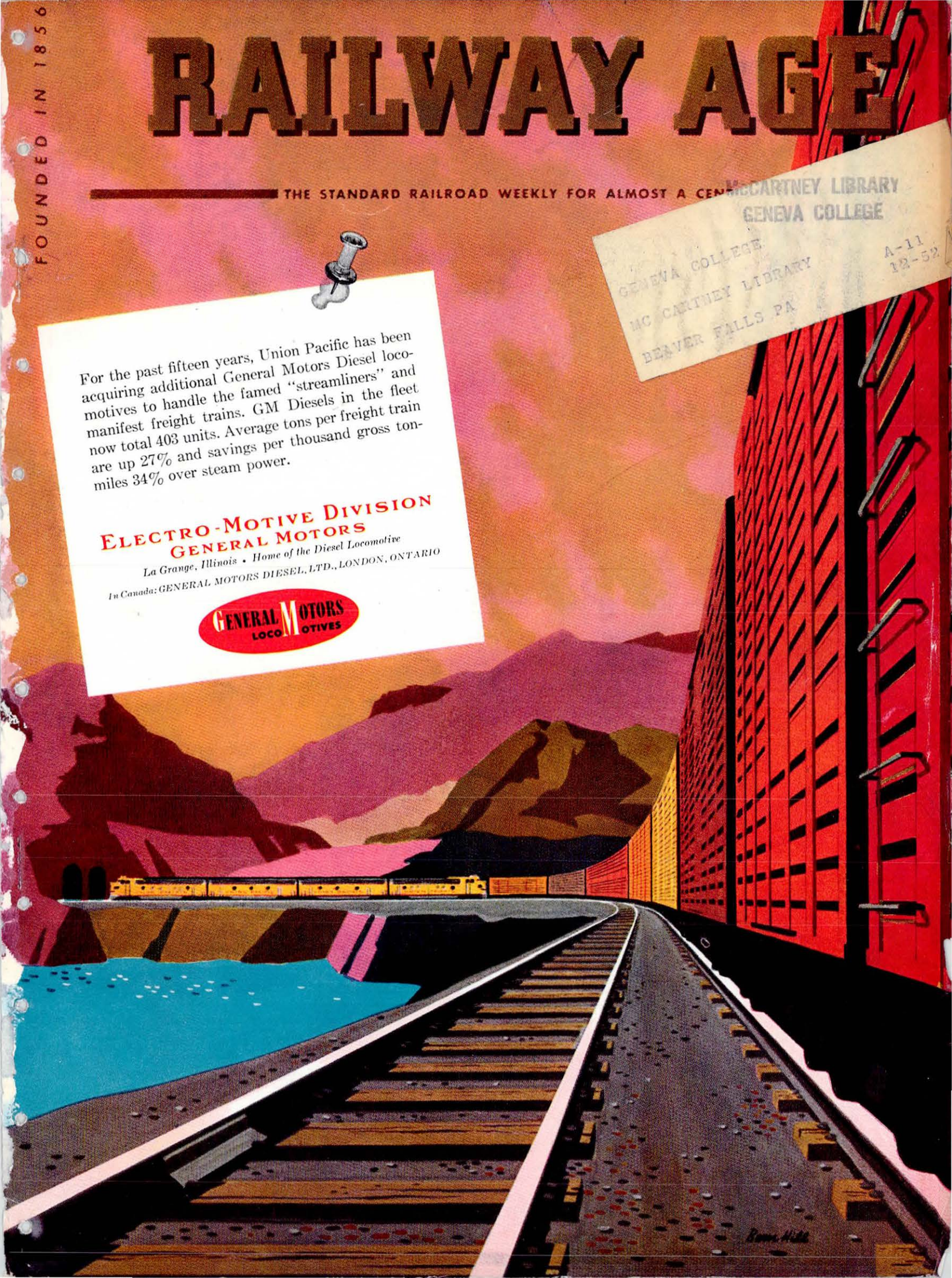

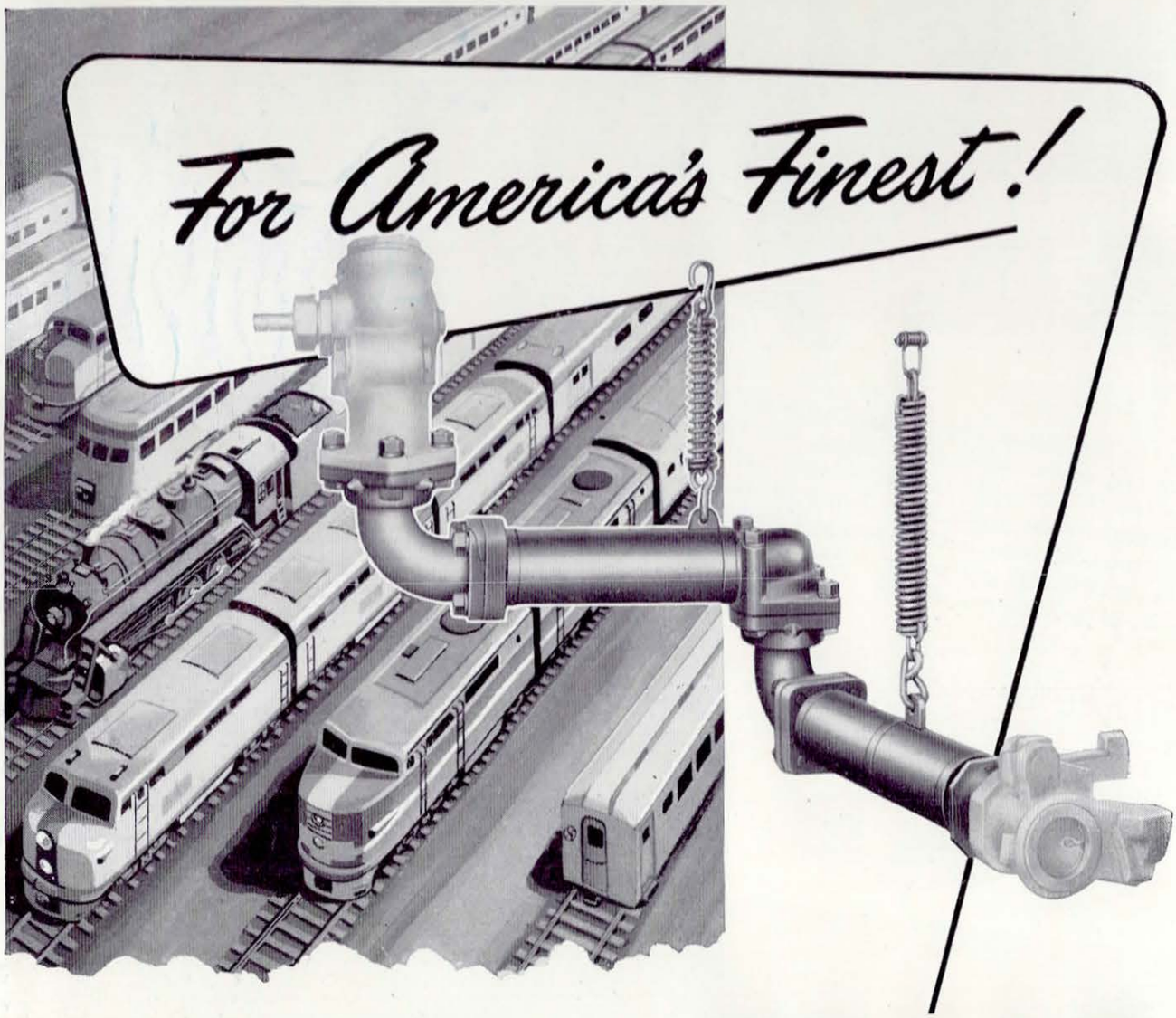

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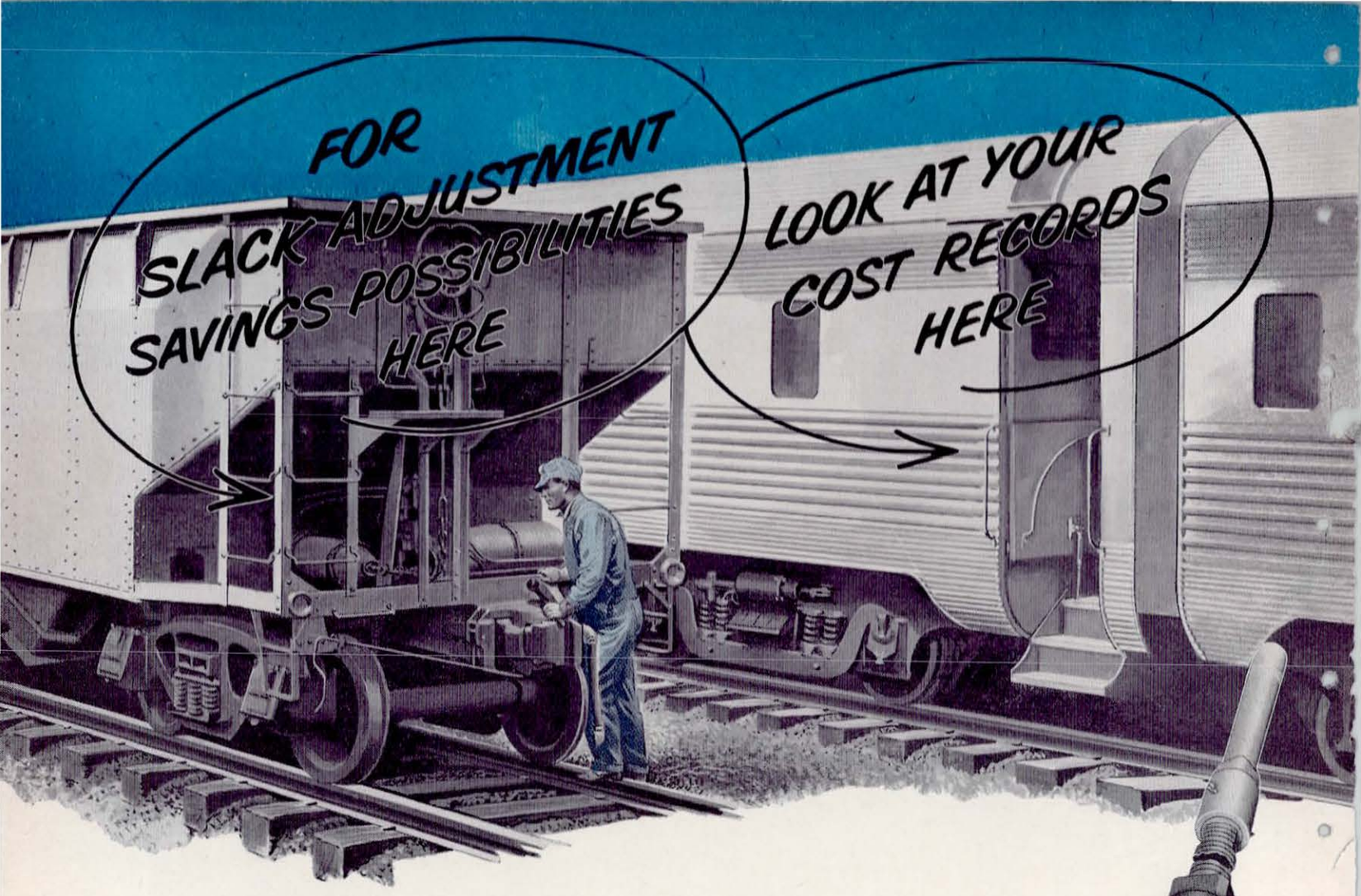

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Vol. 132. No. 17 April 28, 1952

RAILWAY AGE

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IN THE CABOOSE

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WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

Operating revenues, two months
1952 ..... $1,712,000,596
1951 1,564,685,412

Operating expenses, two months
1952 ..... $1,335,056,113
1951 1,253,704,201

Taxes, two months
1952 ..... $ 206,697,408
1951 181,224,306

Net railway operating income, two months
1952 ..... $ 141,962,386
1951 98,153,367

Net income, estimated, two months
1952 ..... $ 91,000,000
1951 53,000,000

Average price railroad stocks
April 22, 1952 ..... 58.28
April 24, 1951 ..... 55.37

Car loadings, revenue freight
15 weeks, 1952 10,735,869
15 weeks, 1951 11,011,470

Average daily freight car surplus
Week ended April 19, 1952 19,002
Weew ended April 21, 1951 6,479

Average daily freight car shortage
Week ended April 19, 1952 1,663
Week ended April 21, 1951 11,588

Freight cars delivered
March 1952 8,159
March 1951 7,011

Freight cars on order
April 1, 1952 115,854
April 1, 1951 158,619

Freight cars held for repairs
April 1, 1952 94,509
April 1, 1951 86,246

Net ton-miles per serviceable car per dav
February 1952 1,027
February 1951 964

Average number railroad employees
Mid-March 1952 1,220,658
Mid-March 1951 ..... 1,274,15o

In This Issue

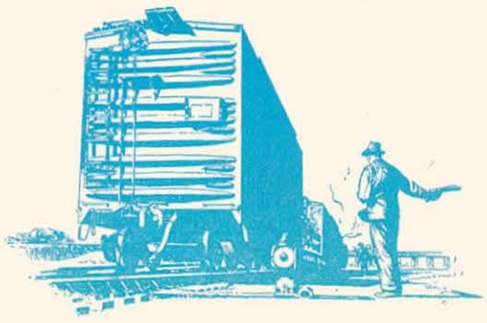
IF ONE HORSE produces one horsepower, over 23.5 million horses would be needed to equal the total power output of the 17,610 diesel-electric locomotive units in service on the country's Class I line-haul railroads on December 31, 1951. Complete and detailed statistics on the railroads' rapidly growing diesel fleet, compiled and copyrighted by *Railway Age*, are reproduced on pages 55 and 56.

THE EX PARTE 175 FREIGHT-RATE INCREASE, while undeniably gratifying, is hardly cause for unrestrained exultation. Some of the reasons why that is so—and why the railroads must still continue to fight with undiminished zeal for greater rate-making latitude—are discussed in the page 37 editorial.

WHATEVER MAY HAVE BEEN THE CASE 50, or even 25 years ago, major responsibility for railway-highway grade crossing accidents, and for the cost of remedial and preventive measures, now belongs definitely to highway users—not to the railroads! Why this is so, and the extent to which the shift in responsibility has been recognized by public authorities, is set out in a previously unpublished report by B. S. Voorhees, vice-president of the N.Y.C. and chairman of the A.A.R.'s Committee on Grade Crossing Elimination (page 50).

NO SIMILAR PUBLIC RESPONSIBILITY, however, has been recognized by authorities anywhere as to the losses incurred by many railroads in providing the commutation services so essential to the economic life of our larger cities. One major railroad's suburban problem, and some of the things it has done in an effort to improve that service, and to put it on a paying basis, are told in detail in the article on the Illinois Central's suburban operations, which begins on page 39.

CHEAPER FUEL—AND LONGER LIFE—for diesels may well result from research, conducted by means of the electron microscope, into fuel and lubricating oil and oil additives. What the 45,000-power electron microscope is, what it does, and how it is being used on the D. & R.G.W., is told in the feature article beginning on page 46; what its use may mean to the railroads is the subject of an editorial on page 38.



"INTERNATIONAL ICE BOX!"—That's what the Legislative Committee of the Atlantic States Shippers Advisory Board called the proposed St. Lawrence Waterway, in a report submitted to the board at its recent Roanoke meeting. The whole proposition—which has just been reported to the

WEEK AT A GLANCE

Senate without committee recommendation—can be fittingly described, the board's committee said, by the title of "The Iceman Still Cometh."

In Washington . . .

IT IS SHOCKING to note that Commissioner Aitchison—speaking for the I.C.C. in opposition to S.2518 (to enable the railroads to adjust rates upward quickly when their costs rise)—has suggested that the railroads meet increased costs by curtailing maintenance expenditures instead of increasing rates. Thus making maintenance expenditures on an "in and out" basis is "railroading for the books" with a vengeance—a means to a purely "paper showing" which belies the facts and, in the long run, makes maintenance cost a lot more than it ought to.

AIR-PASSENGER FATALITIES averaged 13 per billion passenger-miles in 1951, when the passenger fatality rate on the railroads was 4.16. With all the praiseworthy improvement the air lines have made in their safety, rail travel appears still to be approximately three times as safe. Basis for the comparative figures is the latest Monthly Comment of the I.C.C.'s Bureau of Transport Economics and Statistics, which is summarized in the news pages.

THE RAILROADS' FREIGHT-CAR FLEET is larger—1,842,646 cars on April 1, against 1,803,285 cars a year earlier. But the increase was accomplished in large part by the not entirely desirable stratagem of holding retirements to the sub-normal level of 51,030 cars in the intervening year. Incidentally, Arthur H. Gass, from whose monthly review those figures are taken (see news pages), also reports that 22 Class I "steam railroads" now own no steam locomotives. Latest one to give them up completely is the Cambria & Indiana.

RICHARD W. ROGERS, above, chief mechanical officer of the Seaboard Air Line, is now director of the National Production Authority's Railroad Equipment Division. Mr. Rogers, whose appointment was noted in Railway Age, *April 7, page 145, and again on April 14, page 14, is expected to serve in Washington until early next fall. With N.P.A., he succeeded Guy Otis Beale, vice-president of the Chesapeake & Ohio.*

. . . And Elsewhere

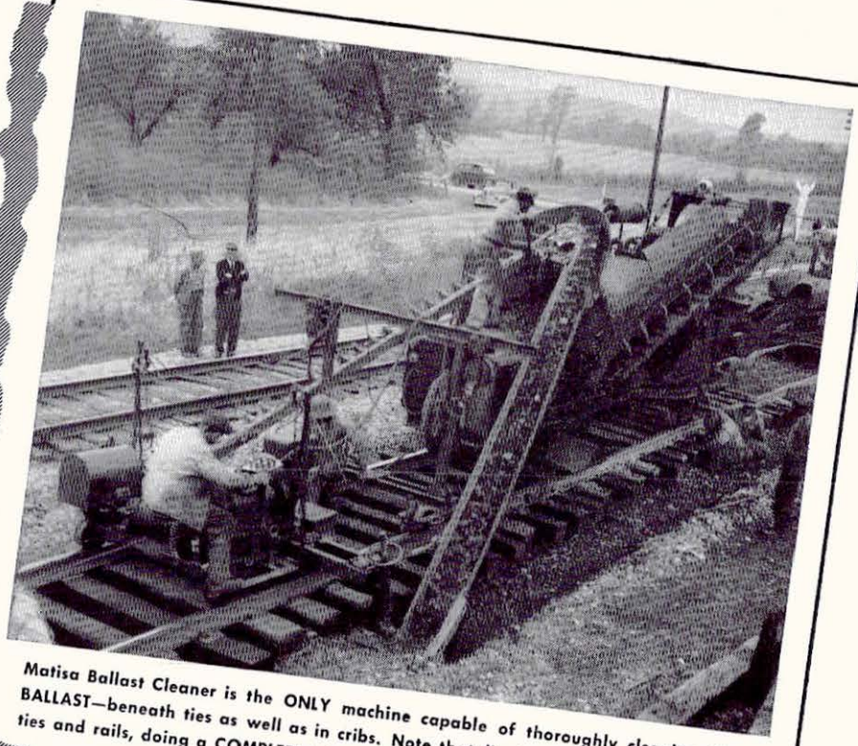
"WHAT THE RAILROADS WANT is not legislation to get rid of competition, but legislation to compete with competition."—Patrick B. McGinnis, chairman of the board, Norfolk Southern, in an address to the New York Society of Security Analysts.

BURLINGTON STREAMLINERS almost became named for a kind of beer when "zythum," the last word in the dictionary, was nominated to describe the "last word" in trains back in 1934. However, Ralph Budd, moved on a warm spring day to read from Chaucer's Canterbury Tales, came across the word "zephyrous," and the little pioneer streamliner ultimately was christened in the name of the gentle west wind. This and other interesting sidelights on Mr. Budd's long railroad career have been detailed in one of the Chicago Tribune's series "How Men at the Top Won Their Place."

"FERROEQUINOLOGIST"! That tongue-twister—which is a brand new one to us—was used by the "San Jose (Cal.) Mercury" in describing the organization of a new California rail fan group, the Central Coast Railway Club. The $10 word, the "Mercury" says, means "student of the iron horse"; it comes from the Latin: ferro—iron; equin—horse; and -ologist—student of.

Hold Grade Levels

Yet put up to 18" of CLEAN BALLAST UNDER TIES



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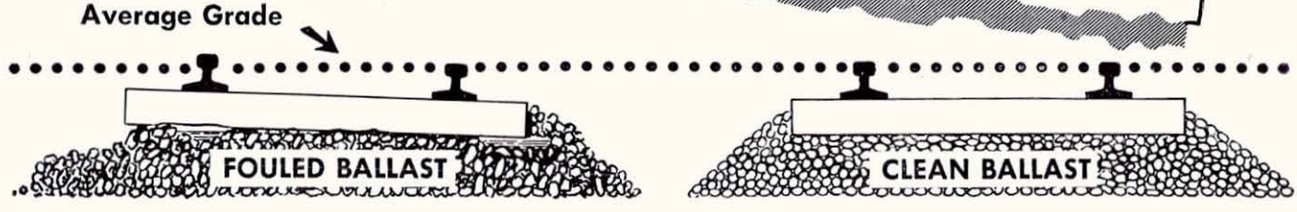

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First, a special overlapping toggle arrangement keeps the lock from jumping upward when there is vertical oscillation of the car. Second, this same overlapping toggle principle prevents unlocking when there is a run-in of slack combined with car bounce or coupler droop. Third, also in connection with run-in of slack and car bounce, the anti-creep shoulder of the rotor lever jaw strikes an abutment of the coupler head, for further protection.

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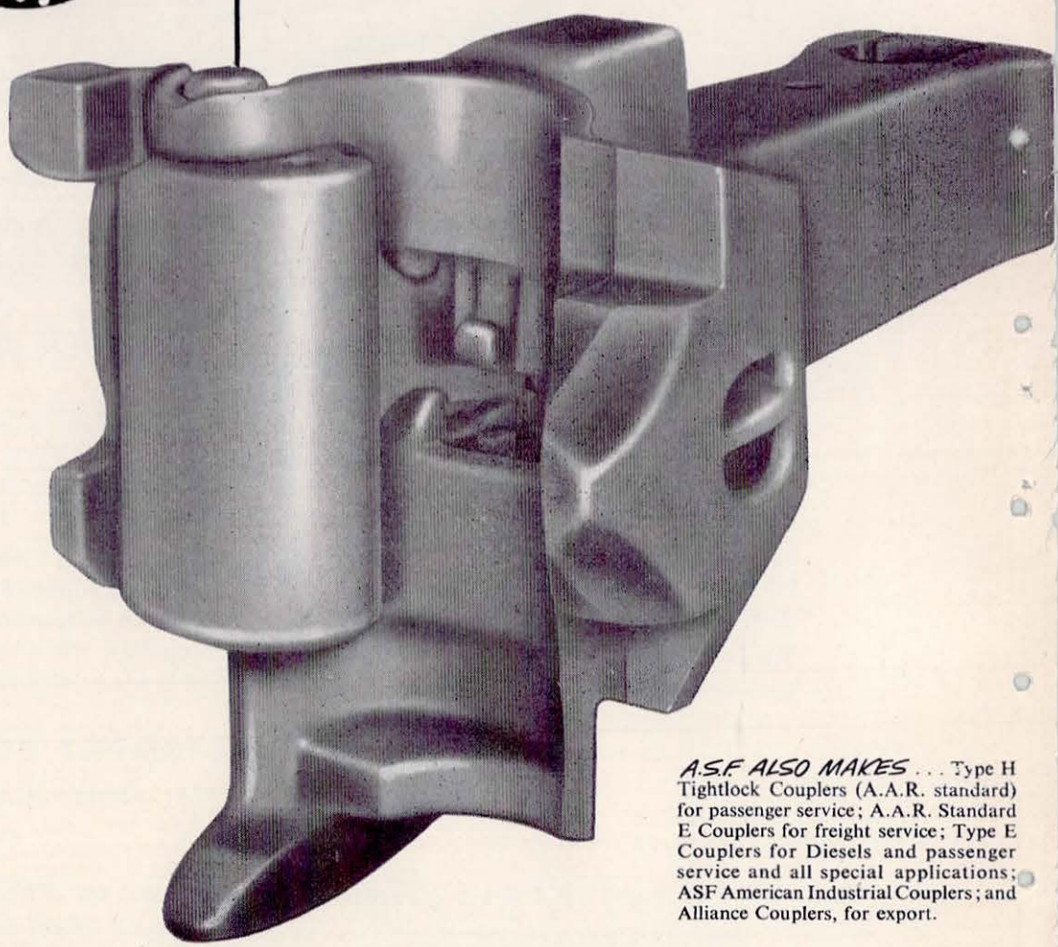

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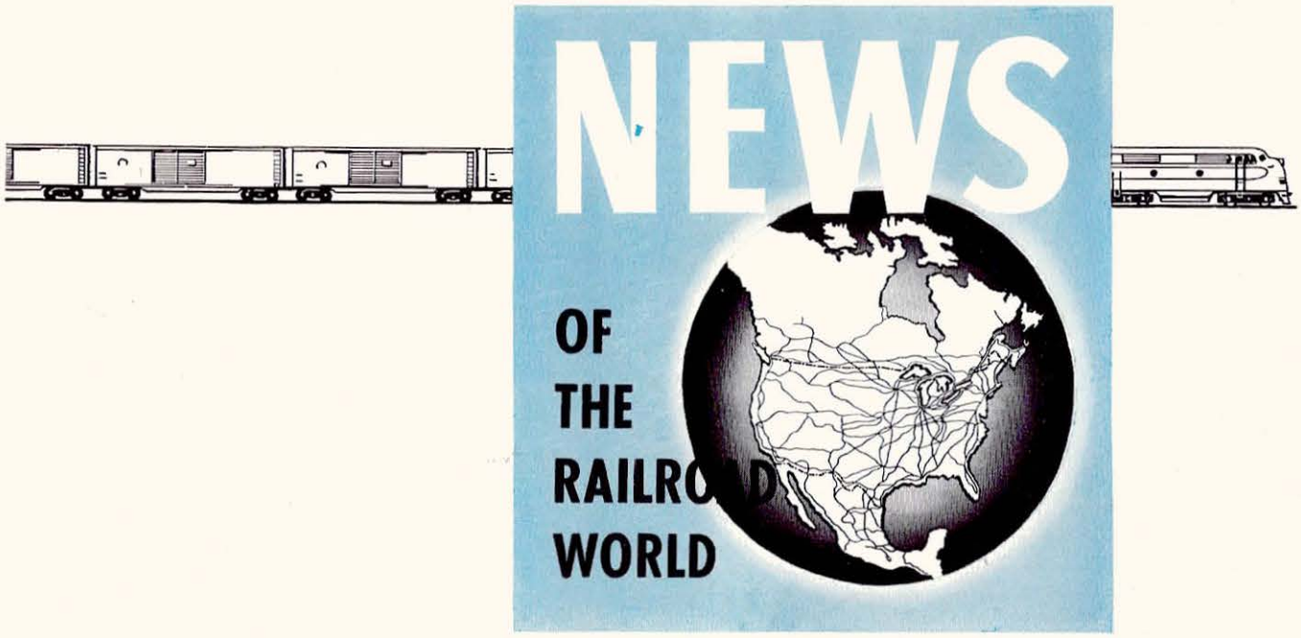


Air Travel Last Year Was Three Times as Hazardous as Rail Travel

I.C.C. bureau's "Monthly Comment" compares the passenger fatality rates of 1951; also has articles on Ex Parte 175 rate increase, latest financial results, trend of fixed charges, and condition of equipment

Travel last year by regularly scheduled domestic air lines was more than three times as hazardous as travel by rail.

This was pointed up by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in the latest issue of its "Monthly Comment." The issue also had estimates of the prospective yield from the Ex Parte 175 rate increase, and other articles on the latest financial results, the trend of fixed charges, and the condition of equipment.

The figures comparing passenger fatalities on the air lines and railroads showed that the air-carrier rate last year was 13 per billion passenger-miles, while the railroad rate was 4.16. The 1950 rates were 11.5 and 5.57, respectively, while the 1949 rates were 13.2 and 0.91.

Other data presented by the bureau showed the situation as to railroad-employee fatalities in railway accidents in the years 1941 to 1951, inclusive. The 1951 fatality rate was 0.14 per million man-hours, which was worse than 1950's 0.132, but better than that of any of the nine other years shown. The range of rates for those nine years was from 0.141 in 1949 to 0.283 in 1942.

The bureau's estimate that the latest Ex Parte 175 increase in rates and charges would yield about $635 million a year was noted briefly in *Railway Age* April 21, page 71. The bureau also estimated that the increase would raise freight rates "currently in effect" by about 6.8 per cent, bringing to 78.9 per cent the cumulative total of authorized increases over the rates in effect June 30, 1946. The accompanying table, reproduced from the "Comment," shows how this cumulative figure was built up.

Actually, the latest commission authorization was for a general 15 per cent increase (with exceptions), which will supplant earlier Ex Parte 175 raises averaging over-all about 6.6 per cent. The 15 per cent will be cut back to about 13.8 per cent, "after allowance for the various hold-downs and exceptions," the bureau estimated. Applying this to an annual-traffic figure of 641 billion ton-miles (which was a railroad estimate made last January), the bureau estimated that the whole Ex Parte 175 adjustment in freight rates will yield about $1,171 million a year. Accompanying increases in other charges, such as those for transporta-

COUNTRY-WIDE OVER-ALL RESULTS OF INCREASES AUTHORIZED—PER CENTS OVER JUNE 30, 1946

Date of report	Effective date of freight rate increases	I.C.C. Docket Number	Percent increase over: Rates in effect on June 30 1946, cumulated	Percent increase over: Rates in effect immediately prior to increase shown
June 20, 1946	July 1, 1946	Ex P. No. 148[1] Ex P. No. 162[2]	6.5	6.5
December 5, 1946	January 1, 1947	Ex P. No. 148[1] Ex P. No. 162[2]	17.6	10.4
October 6, 1947	October 13, 1947	Ex P. No. 166[3]	28.1	8.9
December 29, 1947	January 5, 1948	Ex P. No. 166	37.8	7.6
April 13, 1948	May 6, 1948	Ex P. No. 166	42.8	3.6
July 27, 1948	August 21, 1948	Ex P. No. 166	44.2	1.0
December 29, 1948	January 11, 1949	Ex P. No. 168[4]	51.7	5.2
August 2, 1949	September 1, 1949	Ex P. No. 168	57.3	3.7
March 12, 1951	April 4, 1951	Ex P. No. 175[5]	61.1	2.4
August 2, 1951	August 28, 1951	Ex P. No. 175	67.6	4.0
April 11, 1952		Ex P. No. 175	78.9	6.8

1 Increased Rates, Fares, and Charges, 1942.
2 Increased Rates, Fares, and Charges, 1946.
3 Increased Freight Rates, 1947.
4 Increased Freight Rates, 1948.
5 Increased Freight Rates, 1951—the present proceeding.

tion of milk and cream in passenger service, and for accessorial services, will amount to another $33 million a year, the bureau also estimated.

"The estimated increases," it noted, "assume that, generally, similar rate increases will be allowed by state authorities on intrastate traffic and may be overstated to some extent for that reason."

The bureau's review of the latest financial results compared figures for the first two months of the years from 1941 to 1952, inclusive. The comparison showed that the railroads in January-February 1952, converted 8.3 per cent of their gross into net railway operating income. This compared with a January-February 1951, figure of 6.3 per cent. The range of ratios for the first two months of the other 10 years shown was from 1950's 3.8 per cent to 1941's 16.3 per cent.

Fixed Charges

The articles on the trend of charges showed that total fixed and contingent charges of Class I roads totaled $466 million in 1951—a drop of $8.2 million below the 1950 figure, but $3.5 million above the 1949 figure ($462.5 million), which was the lowest of the 1921-1951 period. The interest on funded debt in 1951 amounted to $325 million, which was $830 thousand below the 1950 figure; but it was higher than the 1948 and 1949 figures of $315.8 million and $321.2 million, respectively.

The bureau's comment on the figures included these observations: "The 1951 charges were below the level of 1930 and 1940 by 31.8 and 26.6 per cent, respectively . . . The 1951 interest charges were smaller than those of 1930 and 1940 by 34.5 and 30.9 per cent, respectively. Since 1940, railroad reorganizations and voluntary debt retirements by many carriers have resulted in sharp reductions in total fixed and contingent charges, which include the interest on funded debt."

Equipment Condition

As to the condition of equipment, the bureau's figures showed the situation as of the close of February. The 1952 situation was better than that of 1951 with respect to all types of rolling stock except freight cars where the unserviceable proportion rose slightly—from 4.5 per cent to 4.6 per cent. The latter, however, was more favorable than the comparable figure as of the close of February 1949, which was 4.8 per cent.

All other February 1949 figures were more favorable than those of February 1952. The latter showed unserviceable percentages (in addition to the freight-car figure) as follows: Yard switching locomotives, 10.2 per cent; road freight locomotives, 18.4 per cent; road passenger locomotives, 17.4 per cent; passenger-train cars, 8.4 per cent.

Another article had figures which indicated relationships of railroad employment to employment in transportation and public utilities, and to all civilian employment. As the bureau interpreted them, these data showed:

"From 1939 through 1943, the increases in rail employment were greater, relatively, than in the total group, 'Transportation and Public Utilities,' and through 1945 greater than in all civilian employment (in both of these groups rail employment, of course, is included). After those dates, the relative position of rail employment declined, generally, until 1951, when a slight increase appeared in relation to total employment."

Canadian Transcontinental Rates Cut by "Subsidy"; International Rates Increased

The Canadian Board of Transport Commissioners at Ottawa has ordered the railways to reduce freight rates by about $7 million a year on goods moving between eastern and western Canada.

Cost of the reductions, which go into effect May 1, is to be covered by a "subsidy" voted by Parliament at its 1951 fall session, as the first major implementation of the rate equalization plan of the 1948-51 Royal Commission on Transportation. Basis for the "subsidy" is the maintenance costs of the two transcontinental railways over a stretch of about 550 miles in northern Ontario, with Parliament setting a $7-million-a-year maximum. The board said in its judgment—delivered after hearings last month—that the maintenance costs are more than $7 million and that, therefore, the full $7 million should be employed.

On the other hand, Canadian railways are, unofficialy, expected to realize about $10 million from increased freight charges on much of the two-way U. S.-Canada rail traffic.

These international increases will be 9 per cent in the west and 6 per cent in the east on Canadian sections of the international traffic. They correspond to regional increases recently awarded U.S. railways by the Interstate Commerce Commission (*Railway Age*, April 21, page 71).

Major exceptions to the Canadian increases include coal and coke, grain and grain products, some shipments of oil products from the U.S. to western Canada and some miscellaneous articles in the west.

The higher rates are expected to be imposed about May 2, on 15 days notice, instead of the statutory 30 days. The increase is in line with the customary practice of having matching rates above and below the border on trans-border traffic.

In ordering the transcontinental cuts, the Transport Board put into effect a compromise between conflicting proposals of Manitoba on the one hand and the remaining western provinces on the other. The compromise is a middle course between the three far western provinces' demand for straight percentage decreases and Manitoba's contention that cuts should be on a cents per pound basis on traffic moving over the northern Ontario rail "bridge."

Topeka State Journal

SEVEN MONTHS AND $100,000 after last July's disastrous floods at Topeka, Kan., the Union Pacific-Rock Island joint passenger station was reopened for service. Floodwaters reached the level indicated by ticket agent C. R. Elder (left). Deep silt had to be removed and all the wall replastered. Once this work was done, completely new furnishings and fixtures were installed.

FLANKED BY A STRING of flat cars loaded with light tanks produced at Cleveland's Cadillac tank plant, are 11 steam locomotives retired by the Erie in favor of new diesels. The old engines, expected to yield about 3,000 tons of steel scrap, were started on their way to scrap yards at special ceremonies held recently in Cleveland.

As ordered, the reductions will amount to 2.53 per cent of existing basic rates plus 5.8 cents per 100 pounds. On a percentage basis, this comes to roughly 5 per cent. It will have the effect, on traffic involved, of wiping out the latest 4½ per cent general freight rate increase authorized by the Transport Board early this year.

Some $150 million a year in east-west traffic passing over the northern bridge will be affected by the reductions, which are designed chiefly to lower rail charges for western consumers on goods they buy in the east. The big eastbound movement of grain from the west, already held at a low rate level by statute, will not be subject to the reductions.

Other exemptions are coal from Alberta and eastern British Columbia moving to Ontario with the help of federal-treasury subventions; competitive rates—those already lowered to meet competition; international traffic between Canada and the United States; export-import traffic through Canadian ports; and "agreed charges" —rates set by contract between railways and shippers.

Hold-Down on Retirements Builds Up Freight-Car Fleet

Class I railroads and railroad-owned refrigerator car lines have built their freight-car ownership to the highest level since December 1949, "by holding retirements to the subnormal level of about 4,250 per month for the past 12 months."

This was noted by Chairman Arthur H. Gass of the Car Service Division, Association of American Railroads, in his latest monthly review of "The National Transportation Situation."

The April 1 ownership figures were those which Mr. Gass was discussing. They showed a total ownership by Class I roads and their car-line affiliates of 1,842,646 cars. That compared with 1,803,285 cars on April 1, 1951. In the 12 months ended last March 31, retirements totaled 51,030 cars, compared with 71,226 in the 12 months ended March 31, 1951.

"If retirements continue to run below normal," Mr. Gass said, "it is possible that a further slight increase may be accomplished before the peak traffic period in October, despite the reduction in new car output anticipated during the next six months."

As for retirements of steam locomotives, a "new high record" of 661 was established in March, Mr. Gass also reported. He added that these March retirements included "the last six steam locomotives on the Cambria & Indiana, which road is now one of the 22 Class I 'steam railroads' owning no steam locomotives."

Mr. Gass' review of equipment conditions by types of cars said that the box-car supply was "considerably easier" than it was a year ago, and that supply conditions were otherwise generally satisfactory, except as to flat cars. The supply of plain flats was "still tight to short in many localities," and requirements for special-type flats were being met "on a deferred basis." Also, Mr. Gass anticipated that the supply of covered hoppers "will, no doubt, tighten up sharply within a few weeks," as outdoor construction got under way.

The report's figures on freight car performance showed that the February average of net ton-miles per serviceable freight car per day was 1027. This compared with 979 for the previous month and 964 for February, 1951.

Reports from shipper car-efficiency committees indicated that cars detained beyond the free time of 48 hours averaged 14.04 per cent of those placed in March. This compared with February's 13.7 per cent and 14.79 per cent for March 1951.

Walkie-Talkie Saved Omaha, Council Bluffs

Portable communications equipment operating on railroad-assigned frequencies has been cited as one of the major factors in saving the Omaha-Council Bluffs area from the record floodwaters of the Missouri river.

At press time for this issue, the Missouri's crest was approaching St. Joseph, Mo., and east-west roads of the Omaha-Council Bluffs area were beginning to operate again through yards and on main tracks that had been blocked by emergency earthwork dikes —some of which were 10 feet high and 40 feet thick. These dikes were patrolled by men equipped with walkie-talkie units who reported instantly any signs of leakage or "boiling" to an emergency flood control commission. Earth-moving equipment, men and sandbags were thus instantly dispatched to trouble scenes.

The Union Pacific not only furnished the frequency channel for this operation, but also set up maintenance procedures for the radio equipment and kept all batteries charged. In addition, the Rock Island had emergency radio communications facilities set up at two points on both banks of the river so that both railroad and emergency public messages could be handled in event of telephone or telegraph failure.

Flood conditions along the Mississippi were not as severe insofar as most

main-line operations were concerned. Some lines, however, had water above the rails and steam motive power was employed to get through low spots. Yards in the St. Paul-Minneapolis area were being restored to service rapidly and most of them were expected to be in full operation by April 28 or 29. Some through passenger trains were being detoured in both flood zones and in a few instances service on lines parallel to the two rivers had to be annulled.

N.P.A. Modifies Order Governing M.R.O. Supplies

Railroads may now spend up to $2,500 on "minor capital additions" without authority from the Defense Transport Administration and National Production Authority, i.e., without filing CMP-4C applications. This limit, supplanting a former limit of $750, was established in an April 16 amendment to the N.P.A.'s order, M-73, which governs acquisition of maintenance, repair and operating supplies as well as minor capital additions.

The amendment also brought "installations" under M-73 for the first time. An "installation" was defined as the setting up or relocation of machinery, fixtures or equipment where the total cost of all materials involved is not greater than $1,000. However, the controlled materials required for the installation must not exceed two tons of carbon steel and 200 lb. of copper. Use of aluminum, stainless steel or alloy steel is prohibited.

"Such installation is not construction as defined in revised CMP Regulation 6," according to the amendment.

Other provisions of the amendment revised the reporting form NPAF-105 to eliminate requirements for reporting of inventories. The amendment also clarified the position of railroads whose quarterly M.R.O. and minor capital addition requirements are less than $25,000.

D.T.A. Car Goals Approved by D.P.A.

The expanded freight-car program recommended recently by the Defense Transport Administration has been approved by the Defense Production Administration.

As reported in *Railway Age* of April 14, page 12, the D.T.A. recommendations called for production goals which would contemplate the building of 11,000 cars per month during the 21-month period from next October 1 to July 1, 1954; and 11,875 cars per month during the subsequent 12 months from July 1, 1954, to July 1, 1955.

Freight Car Loadings

Loadings of revenue freight in the week ended April 19 totaled 735,097 cars, the Association of American Railroads announced on April 24. This was an increase of 44,437 cars, or 6.4 per cent, compared with the previous week; a decrease of 74,925 cars, or 9.2 per cent, compared with the corresponding week last year; and an increase of 12,409 cars, or 1.7 per cent, compared with the equivalent 1950 week.

Loadings of revenue freight for the week ended April 12 totaled 690,660 cars; the summary for that week, compiled by the Car Service Division, A.A.R. follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, April 12

District	1952	1951	1950
Eastern	117,213	139,716	131,547
Allegheny	130,476	158,384	149,262
Pocahontas	52,360	69,396	61,512
Southern	129,806	133,440	126,636
Northwestern	94,505	106,816	71,239
Central Western	108,397	119,362	110,685
Southwestern	57,903	59,335	56,504
Total Western Districts	260,805	285,513	238,428
Total All Roads	690,660	777,989	707,385
Commodities:			
Grain and grain products	40,166	48,822	38,976
Livestock	8,434	7,978	8,257
Coal	115,929	135,304	152,970
Coke	9,974	14,859	14,261
Forest products	43,600	48,012	38,783
Ore	43,815	48,858	16,021
Merchandise l.c.l.	74,584	81,325	84,808
Miscellaneous	354,158	392,831	353,309
April 12	690,660	777,989	707,385
April 5	707,142	739,523	700,049
March 29	725,423	755,435	720,404
March 22	719,921	748,878	717,259
March 15	708,826	745,128	725,534
Cumulative total 15 weeks	10,735,869	11,011,470	9,531,439

In Canada.—Car loadings for the seven-day period ended April 14 totaled 65,207 cars, compared with 73,793 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 14, 1952	65,207	32,170
April 7, 1952	73,793	33,861
Cumulative Totals		
April 14, 1952	1,118,606	540,510

Stubbs Returns to Erie After Service with D.T.A.

Elmer J. Stubbs resigned as director of the Railroad Transport Division, Defense Transport Administration, effective April 15. He will return to his former position as assistant vice-president of the Erie.

No successor to Mr. Stubbs at D.T.A. has yet been appointed, and the division is temporarily in charge of Frank E. Russell, who has been serving as consultant to D.T.A. Administrator James K. Knudson on roadway, equipment, and manpower problems. Mr. Russell, "on loan" from the Southern Pacific, is expected to return to that road "in a few weeks," Mr. Knudson said.

The D.T.A. administrator also made public excerpts from letters which he had written to Mr. Stubbs and to President Paul W. Johnston of the Erie. To Mr. Stubbs, he said: "You have served with diligence and industry for the past six months. I want to thank you personally and officially for the service you have rendered."

In his letter to Mr. Johnston, Mr. Knudson said: "In all my government experience, I have never known a man who applied himself more industrially in the matters coming under his purview than Mr. Stubbs. Thanks to his efforts and diligence, we now find our position in all matters which came under his direct supervision to be much stronger than when he came with us. You and the Erie have contributed a great deal to the defense effort by making Mr. Stubbs available to us."

History Should Help Officers Make Earnings

Good company history should deal with business decisions and financial results thereof. It should be of value to young executives. Elimination of one major error in current managerial policy, through a knowledge of the past, "is worth [to the railroads] a thousand readers of romantic 'readable' history."

So went the gist of a paper presented to the Lexington Group at its 10th anniversary dinner, in Chicago, on April 16, by Dr. Thomas C. Cochrane, professor of history at the University of Pennsylvania, and author of a forthcoming study "The Railroad Executive, 1840-1890," to be issued by Harvard University Press.

Titling his talk "Performance and Promise in Railway History, 1942-1952," the speaker outlined themes which historians might pursue with profit to the companies about which histories are written. He indicated that few railroad histories in being fulfill that prescription. He advised that the writing of "good" company history is an expensive undertaking, requiring considerable staff, at good pay, for a substantial period of time. "Viewed as a public relations project, a $100,000 company history is expensive. Viewed as a means of judging future action, it is cheap," declared Dr. Cochrane. "Net earnings and the means to get them should be the core of business history."

SUGHRUE, MILLER, SUCCEED FRENCH ON B.&M., ME. C.

Timothy G. Sughrue, who has been executive vice-president of the Boston & Maine and the Maine Central since January 1949, has been elected president of the former road. E. Spencer Miller, first vice-president of the latter road and president of its subsidiary Maine Central Transportation Company, has been elected president of the Maine Central.

They succeed Edward S. French, who has been president of the B.&M. since 1930 and of the Me. C. since 1932, and who now becomes chairman of the board of both companies.

The speaker also reviewed the origin and growth of the Lexington Group as an "informal organization," without dues, treasury or officers, having as its purpose the provision of "channels of communication" among historians, people just interested in railroad history, and the railroads themselves. The group now has 101 members—whose only obligation is to reply to an annual questionnaire asking if they want to remain members.

To a nationwide inquiry, Class I roads owning 85 per cent of the route mileage in the United States and Canada replied that they were willing to allow scholars access to past company records — including interoffice communications, correspondence, operating reports, etc. It is Dr. Cochrane's opinion that "the railroad industry has led all businesses in opening its records to historians." An inquiry to 10 international railway labor unions brought considerably less success, although six indicated a willingness to allow access of varying degrees.

Dr. Richard C. Overton, professor of business history at Northwestern University, founder of the group and its secretary and mainspring for the past 10 years, described briefly the main accomplishment of the group as bringing historians together on lines of inquiry of mutual interest. He said he knew of no instance where members did not "go the limit" in digging out facts and sources when asked to do so by other members.

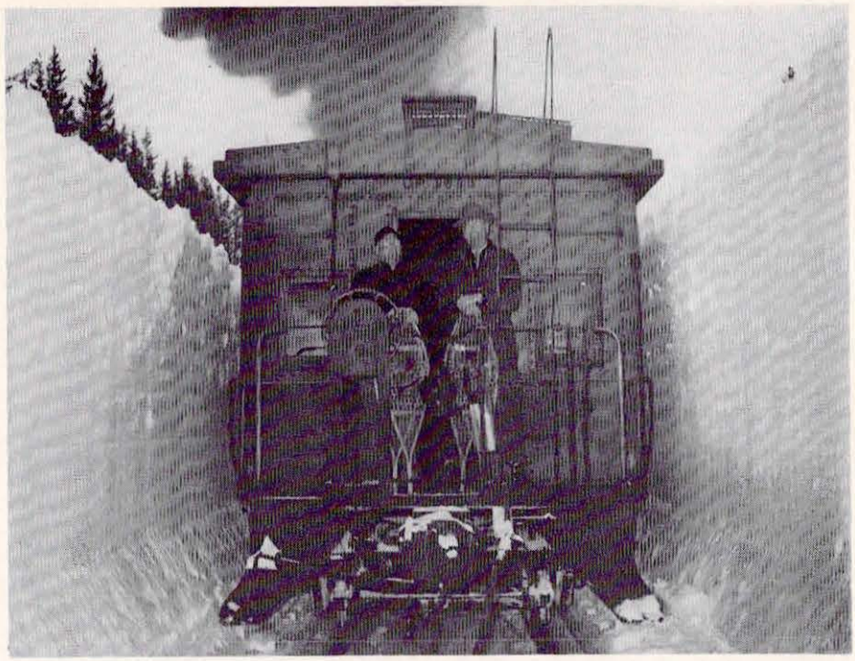
Dr. Stanley Pargellis, head of the Newberry Library, Chicago, was toastmaster. The group was initiated, he said, by eight scholars in Lexington, Ky., in May 1942. Its success, he averred, lies in interesting historians in railroads and railroad executives in history.

More than 100 railroad officers, professional historians and others interested in railroad history attended the dinner. Among them were some 30 top-ranking railroad public relations officers, three vice-presidents, and a past president. Included on the five-man dinner committee were G. Murray Campbell, vice-president, Baltimore & Ohio, and George M. Crowson, assistant to president, Illinois Central.

Thrown out to the historians as a worthwhile project—which, so far as is known, has never been attempted—is a "real history of local mass transportation in America." The challenger was Ralph Budd, retired president of the Burlington, and now chairman of the Chicago Transit Authority.

Railroad Fined

The Interstate Commerce Commission has received information from the Department of Justice that on March 27, in the U.S. District Court for the Northern District of Alabama, judgment was entered in favor of the government and against the carrier in the sum of $3,900 and costs in the case of *United States v. Southern Railway Company.*



SIGN OF SPRING?—The Union Pacific's annual spring plowing of its Yellowstone Park branch—a 56-mile line from Ashton, Idaho, to West Yellowstone, Mont., unused in the winter months—is a pretty rugged test for any plowing equipment. This year the U. P. used a diesel-electric-powered rotary plow and a four-unit diesel locomotive to complete the job in four days. With snowshoes in hand, C. C. Larkin, superintendent of the U.P.'s Idaho division (right), and M. L. Jennings of the Southern Pacific, admire the "view" of typical drifts from the caboose of the plow train. Mr. Jennings was one of a group of observers who made the trip to study operation of the diesel plow. Drifts this year ranged from five to 13 feet in depth.

I.C.C. Secretary W. P. Bartel made public this information in an April 17 memorandum for the press. The memorandum said the court action was a civil penalty "for failure to comply with the provisions of Revised Service Order No. 866, issued by the commission and prescribing railroad operating regulations for freight car movement in the existing emergency."

Amortization Certificates

Certificates of necessity authorizing accelerated amortization of facilities for tax purposes were approved for 13 railroads during the period from March 7 to March 20, the Defense Production Administration has announced.

The roads for which the certificates were approved are listed below. The percentage figure in each case shows the amount which can be written off in five years.

Atlantic Coast Line, $169,220—40 per cent.

Delaware, Lackawanna & Western, $2,198,440—70 per cent.

Green Bay & Western, $285,592—55 per cent.

Lehigh & Hudson River, $295,400—55 per cent, $56,354—50 per cent, and $24,883—40 per cent.

Lehigh Valley, $474,009—50 per cent, and $38,386—40 per cent.

Louisville & Nashville, $104,150—55 per cent.

Minneapolis, St. Paul & Sault Ste. Marie, $1,514,500—70 per cent, $1,534,015—55 per cent, $543,000—50 per cent, and $91,342—40 per cent.

Nashville, Chattanooga & St. Louis, $100,000—50 per cent.

New York, New Haven & Hartford, $7,500,000—55 per cent, $920,000—60 per cent, and $3,465,000—70 per cent.

New York Central, $2,086,255—40 per cent.

Richmond, Fredericksburg & Potomac, $56,800—40 per cent.

Tennessee, Alabama & Georgia, $148,692—55 per cent.

Toledo, Peoria & Western, $12,000—40 per cent.

The Chesapeake & Ohio and the Pennsylvania recently received certificates authorizing accelerated amortization of facilities for tax purposes. The two roads were on the Defense Production Administration's list of com-

$2 PER DIEM RATE EFFECTIVE MAY 1

The $2 per diem rate which was approved recently by railroad subscribers to Car Service Rules will become effective May 1. It will be applicable on cars in the United States, and will represent an increase of 25 cents above the present rate of $1.75.

The rate on U. S. cars in Mexico will become $2.75 compared with the present rate of $2.05. *(Railway Age*, April 21, page 13.)

"SEEING EYES" FOR B. & O. STRATA-DOME PASSENGERS

"Sightseeing eyes" for night travelers are now being provided for passengers in the "strata-dome" cars on two Baltimore & Ohio trains.

The "eyes" are really four floodlights. Mounted in a group just forward of the "dome," the lights are directed toward the righthand side of the track, lighting up the countryside as the train passes by. The lights are turned off through cities and towns.

The strata-dome cars with the lights operate on the all-Pullman "Capitol Limited" and the all-coach "New Columbian" between Washington and Chicago. The lights were designed under the direction of the B. & O.'s electrical department.

panies for which certificates were approved during the March 20-27 period.

The C.&O. was authorized to apply accelerated amortization to 50 per cent of expenditures totaling $253,000. The P.R.R. certificate covered 40 per cent of expenditures totaling $92,182.

The Ann Arbor and the Southern were on the list covering the period from March 27 through April 3. The former road was authorized to apply accelerated amortization to 55 per cent of expenditures totaling $2,832,868, 50 per cent of expenditures totaling $377,794, and 40 per cent of expenditures totaling $24,669. The Southern certificate covered 50 per cent of expenditures totaling $92,250.

Another recent statement issued by D.P.A. summarized by industries the certificate situation as of February 25. It showed that line-haul railroads, as of that date, had received 459 certificates authorizing fast write-off of 65.8 per cent of $1,351,195,000 spent for new equipment and facilities. Those same roads, also as of February 25, had 302 applications pending for accelerated-amortization authority with respect to proposed expenditures of $374,669,000.

Meanwhile, switching and terminal roads had received 27 certificates authorizing fast write-off of 52.1 per cent of $15,167,000. And they had pending 13 applications involving proposed expenditures of $7,455,000.

B.&M. Commuter Fare Rise Called "Disappointing"

Increases in commutation fares ranging from 25 to 35 per cent, recently authorized by the Massachusetts Department of Public Utilities Commission, were put into effect by the Boston & Maine on April 22.

"The increase granted as a result of our petition which was filed with the commission in May 1951 is disappointing," P. J. Mullaney, vice-president — traffic of the B. & M., said. "We asked for an increase of 66 2/3 per cent which at that time would cover only 40 per cent of the loss being incurred in commutation service. During the year this petition has been in the hands of the commission our costs . . . have increased substantially. The increase as granted will approximate about $800,000 a year based on the present level of traffic and will account for less than 20 per cent of the deficit being borne by the B. & M. in this commutation service."

The B. & M. has announced that faster trains, new Budd Company rail diesel cars (called "Highliners" by the road), a stainless steel streamlined "Minute Man" and better connecting services with through trains are the keynotes of the spring timetables which went into effect on April 27.

"Highliners" operate on the Fitchburg division between Boston and Troy, N.Y., and on the Connecticut River line between White River Junction, Vt., and Springfield, Mass., with New York connections. During May additional "Highliners" will be received from the manufacturer for service on the New Hampshire division between White River Junction and Boston via Concord, N.H., Manchester and Nashua. The Boston-Troy "Highliner" run cuts 1 hour and 25 minutes off the former schedule.

The new Troy-Boston "Minute Man" takes four hours and 15 minutes between terminals, a 20-minute reduction. All coach seats on the "Minute Man" are reserved, and service will be provided by the road's three-car articulated train unit, formerly operated as the "Cheshire" between White River Junction and Boston via Bellows Falls.

Other schedule changes include a 46-minute faster schedule for the "Connecticut Yankee" fron White River Junction to New York City; and a 23-minute faster schedule for the "Day White Mountains" between White River Junction and Springfield. When placed in service, the new Budd "Highliner" between White River Junction and Boston will cut running time between those points by 35 minutes.

New York Central Slows "Century," "Commodore"

Effective with inauguration of daylight time on April 27, the New York Central announced a number of revisions in its passenger timetables, including 30-minute longer schedules between New York and Chicago for the "Twentieth Century Limited" and the "Commodore Vanderbilt."

"Such additional time," F. H. Baird, assistant vice-president, passenger traffic, said, "will contribute greatly to riding comfort and dependability. Surveys have shown that our patrons are more interested in those two qualities of train service than in speed. Convenient arrival and departure times will be maintained, since the change will mean only about 30 minutes more time between major middle western and seaboard cities."

Under the new schedule the "Century" will leave New York at 6:00 p.m., daylight time, and arrive in Chicago at 9:30 a.m., Chicago daylight time. Eastbound, it will leave Chicago at 4:00 p.m., daylight time, and arrive in New York at 9:30 a.m., daylight time. The "Commodore Vanderbilt" will precede it by half an hour in each direction. Other trains will be similarly adjusted.

"In the interest of greater comfort for overnight passengers," Mr. Baird said, the Central is reducing the top speed of its trains to a maximum of 75 m.p.h., to avoid what is described as the "critical speed vibration" encountered at speeds higher than that.

The Central has just taken delivery on its 1,650th diesel-electric locomotive unit. This and other recent deliveries have enabled the road to dieselize all its main line freight service between Buffalo and New York and Boston; and over 86 per cent of all road freight service, both main and branch line, east of Buffalo.

Montana Intrastate Rates

The Interstate Commerce Commission has refused to reconsider its recent decision which found that Montana's intrastate rates result in undue discrimination against interstate commerce. The reconsideration was sought by several petitioners, including Montana's Board of Railroad Commissioners.

The I.C.C.'s denial order said an order carrying into effect the commission's findings would be issued unless the Montana board advised, "on or before May 15," that it will permit the increases called for. (*Railway Age*, March 10, page 96.)

Atlantic Board Considers St. Lawrence, L.C.L. Service

"Even if the government could afford this project it would be of doubtful merit," the Legislative Committee of the Atlantic States Shippers Advisory Board said of the St. Lawrence waterway project, as the board's 87th regular meeting in Roanoke, Va., on April 16.

"At this time it is clearly out of order," the report continued. "Congress should do as it has done every time the waterway has come up since 1895 —bury it." The committee, headed by H. E. Moore of Syracuse, N. Y., general traffic manager of the Precision Castings Company, estimated the total cost of the project, exclusive of work on Great Lakes harbors, at from two to four billion dollars, which it described as "quite a sum for a skating rink that would be in operation for five months a year!"

The board voted to defer until its next meeting at Elmira, N. Y., action on a proposal by Harry Fraser, traffic manager of F. W. Woolworth Company, that the L.C.L. Committee be discontinued on the grounds that the railroads, by abolishing free pick-up and delivery service, increasing rates

and permitting diversion of traffic to freight forwarders, showed "no interest" in providing satisfactory l.c.l. service. During floor discussion, P. M. Shoemaker, vice-president of the Delaware, Lackawanna & Western, said that the Railroad Contact Committee would still deal with l.c.l. service, even if the L.C.L. Committee itself were discontinued.

P.R.R. Discontinues Use Of Broad Street Station

Effective with the change to daylight time on April 27, the Pennsylvania discontinued use of Broad Street Station in Philadelphia, preparatory to demolition of the structure and removal of the tracks leading into it (*Railway Age*, March 3, page 15). Hereafter through trains originating or terminating at Philadelphia, including the "Clockers" to New York and Atlantic City trains, will begin or end their runs at the Pennsylvania Station —30th Street. Suburban trains and certain local electric multiple-unit trains will use the new Suburban Station adjacent to the old Broad Street Station, and shuttle service will be provided between that point and 30th Street for through passengers.

Coincident with the time change, the Pennsylvania readjusted arrival and departure times of a number of its trains, but made no important alterations in overall running time.

President Okays Stop-Gap Extension of War Powers

President Truman has signed the joint resolution recently passed by Congress to extend the President's war powers until June 1. The powers include those under which the government has been operating the railroads since August 1950. (*Railway Age*, April 14, page 13.)

Southern Ports Group Gets O.K. for Bulwinkle-Act Pact

Division 2 of the Interstate Commerce Commission has approved the agreement for joint action on rates and other "traffic matters" which has been entered by 32 railroads which are members of the Southern Ports Foreign Freight Committee.

The agreement was entered pursuant to section 5a of the Interstate Commerce Act, which was added by the Bulwinkle-Reed Act, and the commission's favorable report came out of a proceeding docketed as Section 5a Application No. 19.

The rates and other traffic matters covered are those applicable to the transportation of export and import freight (except specified commodities) through South Atlantic, South Florida, and Gulf of Mexico ports from Morehead City, N. C., to and including Corpus Christi, Tex., from or to points in Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Ohio, South Dakota, Utah, Wisconsin, and Wyoming. Also covered are procedures jointly with Central territory roads and with the Canadian Freight Association concerning the same ports and like traffic.

The excepted commodities are coal, coke, cotton, cotton linters, cottonseed products, grain, grain products, coffee, bananas and cocoanuts. The Department of Justice was in its usual role of protestant. And the commission, as usual, rejected the protest, saying that the department's contentions were "substantially similar" to those raised in other Bulwinkle-Act cases and there found "without merit."

I.C.C. Presents Its Case Against Norfolk Southern

The Interstate Commerce Commission last week began hearings in its No. 30980 proceedings, constituting an inquiry on the commission's own motion into "management, accounting, financial and other practices" of the Norfolk Southern, its bus company and other subsidiaries and several of its principal officers.

President J. T. Kingsley and Chairman P. B. McGinnis were singled out in opening-day testimony. I.C.C. lawyers entered more than 100 exhibits during the first two days, all dealing with salaries and expense accounts on the 650-mile road.

These initial presentations were designed to show that:

Mr. Kingsley, who replaced a $15,000-a-year president in 1947, has received $262,398 in salary, fees and bonus payments since he became president of the road. In 1951 alone, he received $67,600.

Mr. Kingsley's 1951 expense accounts totaled slightly less than $79,000. Of this amount, $55,428 was charged to the railroad, and the remainder to the Norfolk Southern Bus Corporation.

Salaries, fees and bonus payments to Mr. McGinnis totaled $187,233 in the 1947-1951 period. His 1951 expenses, charged to the railroad, amounted to $32,250.

As this issue went to press, the railroad and its officers had not had an opportunity to present their side of the case.

Richard J. Ferris, an accounting investigator in the commission's Bureau of Accounts and Cost Finding, was the I.C.C.'s principal witness. Mr. Ferris conducted on-the-scene investigations of N.S. accounts and records, and commission exhibits were prepared under his direction.

W. T. Griffin, vice-president and general counsel of the N.S., another respondent, was shown to have received compensation of $207,969 since May 1947.

The commission's case included a showing that C. Newton Kidd, chairman of the road's executive committee and vice-president of two warehouse subsidiaries, received salary and fees totaling $59,186 since 1947. As a group, the non-officer directors received more than $212,000 in compensation since the present management took over in 1947.

According to Mr. Ferris, eleven members of the 15-man board of the N.S. are also members of the road's executive committee. Those who are not also officers of the railroad receive $5,000 a year for serving on this committee, Mr. Ferris said. He charged this is a "device" whereby directors obtain added compensation, and he undertook to show that such payments to executive committee members are not a general practice on other railroads.

The N.S. hearing, which began last Tuesday, was delayed for several hours while lawyers for the defendants made a last-minute appeal direct to the commission. They raised objections at the beginning of Mr. Ferris' testimony, contending that the January 14 order of the commission, which instituted this investigation of N.S. "practices," contained no "directive" permitting Mr. Ferris to make public the information obtained from the road's files and accounts. (*Railway Age*, January 28, page 17).

The commission overruled this contention, and "authorized and directed" Mr. Ferris to present his testimony. The hearing, under Examiner O. L. Mohundro, then proceeded.

Supreme Court Will Hear Truck-Lease Appeal

The United States Supreme Court has agreed to review lower-court rulings which upheld the Interstate Commerce Commission's order prescribing rules for the leasing of trucks by motor carriers. Although there have been other like decisions, the lower-court ruling directly involved is that of a statutory three-judge court which

CAR SURPLUSES, SHORTAGES

Average daily freight car surpluses and shortages for the week ended April 19 were announced by the Association of American Railroads on April 24 as follows:

	Surplus	Shortage
Plain Box	4,113	266
Auto Box	329	0
Total Box	4,442	266
Gondola	1,198	583
Hopper	3,441	174
Covered Hopper	77	28
Stock	1,842	0
Flat	20	612
Refrigerator	7,573	0
Other	409	0
Total	19,002	1,663

sat in the United States District Court at Birmingham, Ala.

The principal appellant before the Supreme Court is American Trucking Associations. The commission order was entered May 8, 1951, but its effective date has been postponed until after termination of the court proceedings. The prescribed rules include one which would prohibit trip-leasing of trucks. (*Railway Age*, May 28, 1951, page 61.)

The International Brotherhood of Teamsters has filed in the Supreme Court a motion requesting affirmation of the lower-court decree which upheld the commission. "The trip lease system has frustrated regulation," the brotherhood said.

Scott Named Commerce Undersecretary

President Truman on April 23 sent to the Senate his nomination of Jack Garrett Scott for the position of Undersecretary of Commerce for Transportation. If the appointment is confirmed by the Senate, Mr. Scott will succeed to the position vacated last November by Delos W. Rentzel.

Mr. Scott is a Washington, D. C., attorney who specializes in transportation matters; and he is also general counsel of the National Association of Motor Bus Operators. During the period from January, 1942, to July, 1944, Mr. Scott served as general counsel of the former Office of Defense Transportation. Prior to that time, he was on the staff of the Interstate Commerce Commission's Bureau of Motor Carriers.

I.C.C. Extends Seatrain's New York-Savannah Rights

The Interstate Commerce Commission has extended Seatrain Lines' temporary authority to operate as a common carrier by water between New York and Savannah, Ga. The extension order continues the authorization in effect until further order of the commission, but not longer than the commission's final determination on Seatrain's pending application for permanent rights on the same route.

President Accepts Rogers' Resignation from I.C.C.

President Truman has accepted "with reluctance" the resignation of John L. Rogers from membership on the Interstate Commerce Commission. The resignation will become effective April 30.

Mr. Rogers announced last month that he had applied for retirement—"upon the urgent advice of my physician." (*Railway Age* of March 31, page 17.) He has been in government service more than 35 years, all of which, except for a few months, has been with the I.C.C. This was noted by President Truman whose letter to the retiring commissioner also said: "Your contributions to the transportation problems of the nation have been invaluable."

Congress Votes Funds For Study of Rail Pensions

An expenditure "not to exceed $50,000" has been authorized by Congress for a joint Senate-House study of the Railroad Retirement Act and "related problems." The authorization was embodied in Senate Concurrent Resolution 56, which was approved recently by the Senate and House.

In a previous resolution, approved October 17, 1951, Congress called for the study ("full and complete") and provided for establishment of a joint committee to make it. That resolution, however, provided no funds for the survey.

Senate Group Reports St. Lawrence Resolution

The Senate Foreign Relations Committee has voted to report "without recommendation" a resolution which would provide for the St. Lawrence seaway project. The committee previously had deadlocked on a proposal to report the resolution favorably.

This action by the committee, on April 22, came shortly after President Truman forwarded to Congress another appeal for approval of the seaway.

MORE NEWS ON PAGES 57-67

Additional news appears on page 57, with regular news departments beginning on the following pages:

Equipment and Supplies	**18**
Organizations	**18**
Supply Trade	**57**
Financial	**58**
Railway Officers	**61**

ORGANIZATIONS

Mechanical Division Meeting June 24-26

The Terrace Ball Room of the Fairmont Hotel, San Francisco, has been chosen for the sessions of the A.A.R. Mechanical Division convention to be held June 24, 25, and 26. Presentation of committee reports will be limited to a brief summary of their principal features. It is hoped, however, that representatives of railroads, car and locomotive builders and supply companies who may be planning to attend will review the reports carefully in advance and be prepared with memoranda for a thorough discussion of each.

The program for each of the three days is as follows; time is California Daylight Saving Time:

TUESDAY, JUNE 24
10 a.m.

Address by D. J. Russell, president, Southern Pacific
Address by W. J. Patterson, member, Interstate Commerce Commission
Address by B. M. Brown (chairman), general superintendent motive power, S.P.
Action on minutes of 1951 annual meeting
Appointment of Committees on Subjects, Resolutions, etc.
Unfinished business
New business
Report of General Committee
Report of Nominating Committee
Discussion of reports on:
- Locomotive Construction:
  - Steam and Electric Locomotives Section
  - Diesel Locomotive Section
  - Gas-Turbine Locomotive Section
- Axle and Crank-Pin Research
- Safety Appliances
- Passenger-Car Specifications

WEDNESDAY, JUNE 25
9:30 a.m

Address by E. H. Davidson, director, Bureau of Locomotive Inspection, I.C.C.
Address by L. L. Adams, manager—transportation planning, United States Steel Corporation
Discussion of reports on:
- Brakes and Brake Equipment
- Geared Hand Brakes
- Loading Rules
- Forest Products Loading Special Committee
- Specifications for Materials
- Couplers and Draft Gears
- Arbitration
- Prices for Labor and Materials
- Lubrication of Cars and Locomotives
- Development of Hot-Box Alarm Devices

THURSDAY, JUNE 26
9:30 a.m

Discussion of reports on:
- Tank Cars
- Wheels
- Car Construction

Election of members of General Committee and Committee on Nominations
Report of Committee on Resolutions.

EQUIPMENT AND SUPPLIES

April 1 Locomotive Order Backlog Totals 1,457 Units

Class I railroads in the first three months of 1952 installed 691 new locomotives, and on April 1 the locomotive order backlog was 1,457, according to the Association of American Railroads.

Locomotives placed in service during 1952's first quarter consisted of 687 diesel-electrics, three steam and one electric. Those still on order April 1 included 1,441 diesel-electric and 16 steam.

In March 1952 railroads installed 204 locomotives, of which 203 were diesel-electric and one steam. In the same month last year the roads installed 211 locomotives, including 210 diesel-electric and one steam.

On April 1 a year ago the locomotive order backlog consisted of 1,859 diesel-electric, 20 steam and four electric lo-

(*Continued on page 57*)

Dearborn Cleaner No. 92

. . . for the effective cleaning of ELECTRICAL PARTS!

Here, Dearborn Cleaner No. 92 is being used to cleanse the inside of a Diesel traction motor.

Specially compounded, this versatile cleaner is used undiluted to clean voltage cabinets, relays, motor windings, generators, and other electrical parts and equipment. A fast acting solvent cleaner, it effectively removes moisture, grease and carbonized oily films that cause shorts and result in unnecessary maintenance. It vaporizes completely without oily residues.

Electrical Parts Cleaner No. 92 is but one of many Dearborn special purpose railroad cleaners. For complete information on how you will reduce maintenance time and expense, consult your Dearborn Engineer or write for information.

DEARBORN CHEMICAL COMPANY

Merchandise Mart Plaza • Chicago 54, Illinois

ADVANTAGES OF CLEANER NO. 92

- **May be used on equipment in place.**
- **Cuts maintenance time—saves labor.**
- **Displaces moisture.**
- **Increases meg readings.**
- **Leaves no residual film.**
- **Low toxicity.**
- **Non-conductor.**
- **Harmless to insulation.**

Dearborn Chemical Company
Dept. RA, Merchandise Mart Plaza,
Chicago 54, Ill.

☐ Have a Dearborn Engineer call.
☐ Send information on Dearborn Railroad Cleaners.

Name.....

Title.....

Railroad.....

Address.....

City.....*State*.....

Dearborn
TRADE MARK REGISTERED
THE LEADER IN WATER TREATMENT AND RUST PREVENTIVES

4036

D & H Cuts Expenses, Increases Tonnages With All-Purpose Alco-GE Road Switchers

With Alco-GE diesel-electrics, the Delaware & Hudson Railroad on its Binghamton-to-Mechanicville "bridge" route has:

- Cut operating costs by 60¢ per thousand gross ton miles
- Hauled up to 32% more tonnage per train while maintaining previous schedules and eliminating helper service.

From the crack New York-to-Montreal passenger train, "The Laurentian," to heavy-duty ore runs and fast merchandise traffic, the D & H has found the dependable Alco-GE diesel-electric road switchers to be the answer to its motive power problems.

Using Alco-GE motive power, the D & H has been dieselizing more and more of its 23 symbol freights—each operating daily on passenger train schedules—in its spirited bid to win more traffic to the rails.

Alco GE

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

113-300

Even today you may see here and there a steel plant with a big scrap pile. "Look at all that scrap!" you say. "Why the talk about a scrap shortage?"

Just a minute! The chances are, that big pile is only a few days' supply. For it takes on the average a half ton of scrap to make a ton of steel. To keep the steel mills of the country operating at capacity calls for *95,000 tons of purchased scrap every day.*

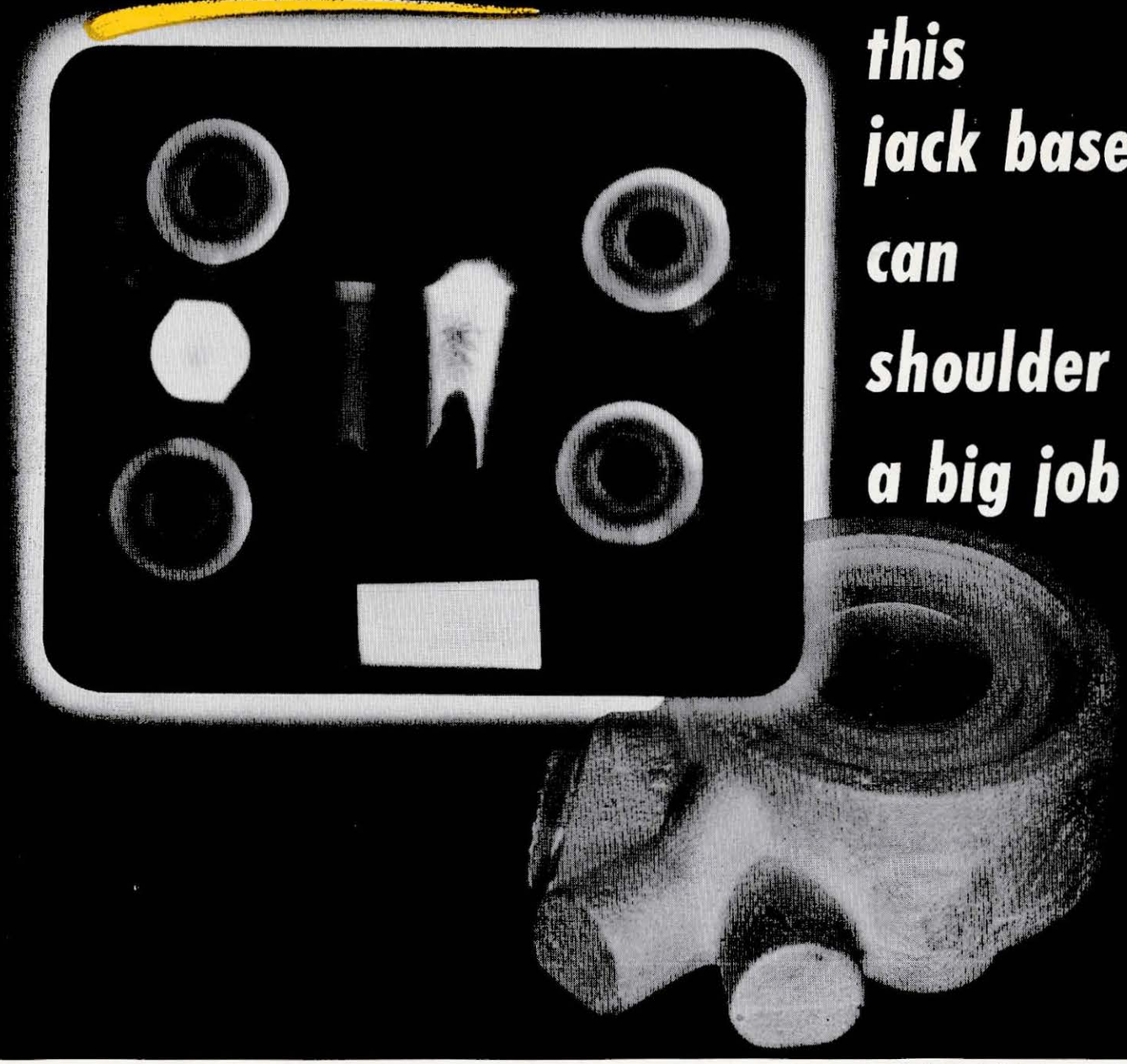
That's why it's so urgent to move the millions of tons of forgotten scrap that's snagged up in plants and factories and on farms all over the country. Freeing that dormant scrap to build up the steel mills' scrap piles would mean a far brighter steel supply picture, with more steel for everybody. So make a systematic check of your plant for dormant scrap, and then call in a scrap dealer!

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

More Scrap Today... More Steel Tomorrow

RADIOGRAPHY MAKES SURE this jack base can shoulder a big job



Hydraulic jack bases—as cast.

Hydraulic jacks are born to lift loads many times their own weight and size—to stand internal pressures of thousands of pounds per square inch.

This takes sound castings—soundness which only radiography can prove without damage to the part. And the designers, knowing the casting will be sound, can count on strength without excessive weight.

Instances like this show why more and more foundries are making radiography routine. It is the way to be sure only high-quality castings are released.

If you would like to know how radiography can improve your plant operation, talk it over with your x-ray dealer. And, if you wish, we'll send you a free copy of "Radiography As A Foundry Tool."

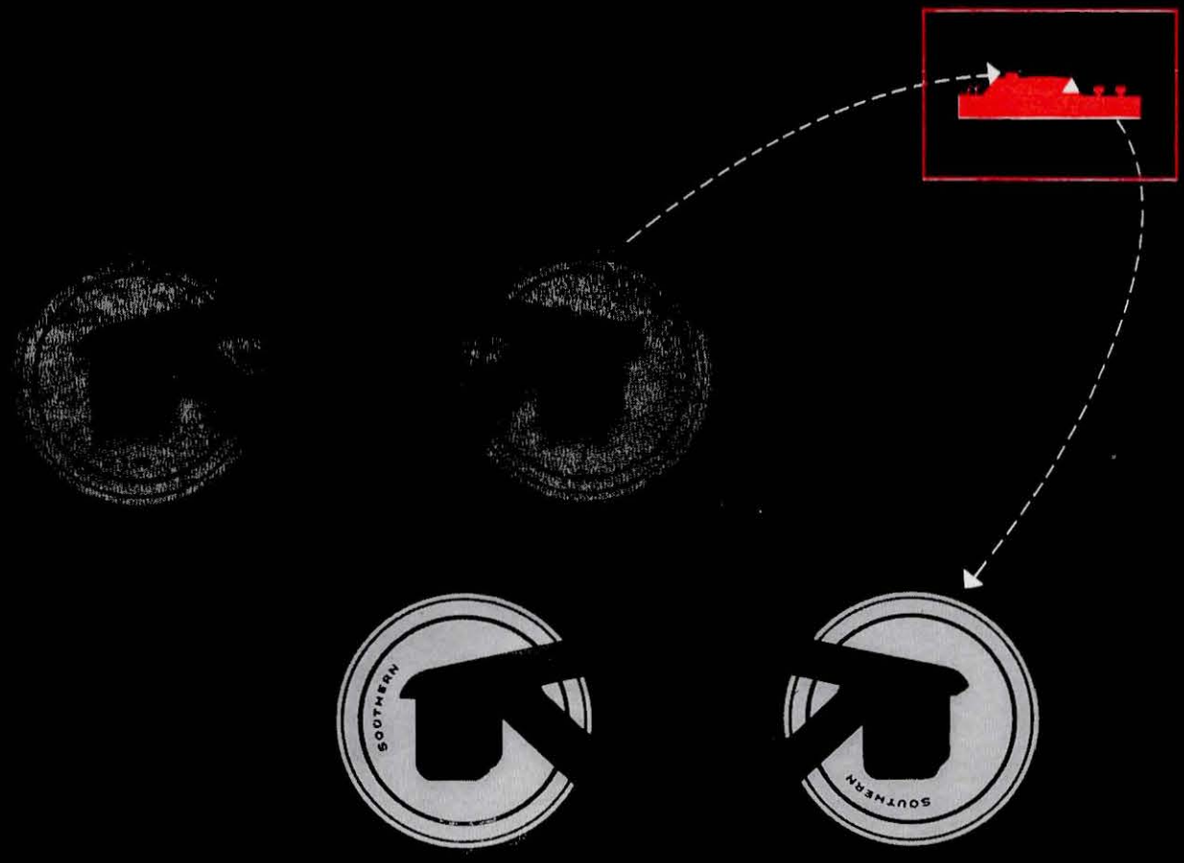
EASTMAN KODAK COMPANY
X-ray Division, Rochester 4, New York

Radiography...

another important function of photography

Kodak
TRADE-MARK

Exchange your scrap wheels



for new

Conversion of scrap cast iron wheels into new has been a Southern Wheel service for over 100 years.

Conversion protects your delivery, particularly in these days of scrap shortages.

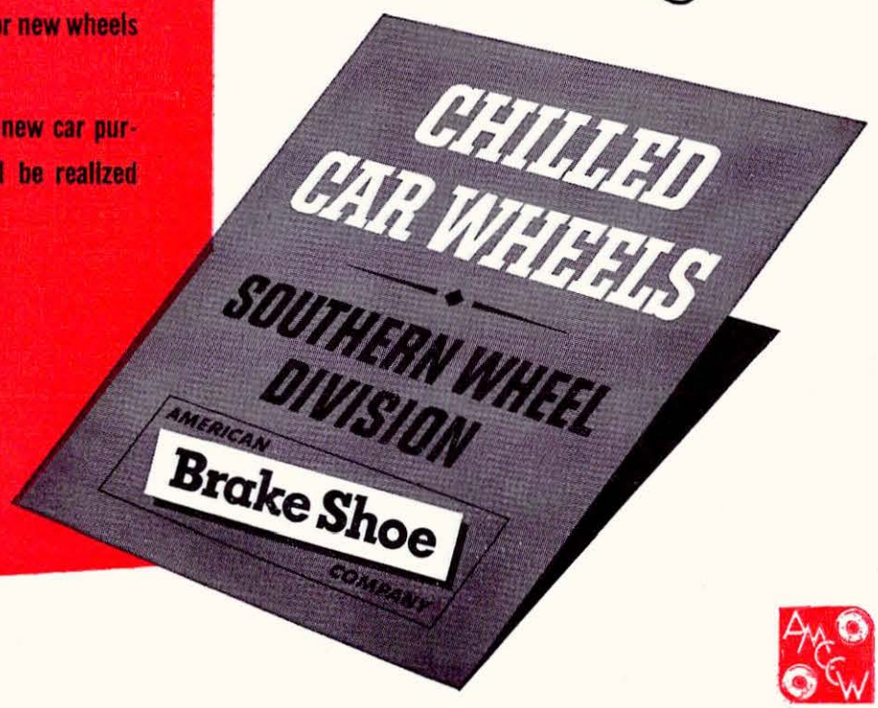
Conversion contributes to uniformity of product required to meet rigid AAR specifications for standard cast iron wheels.

Conversion is convenient. Our seven plants are strategically located to handle your wheels with maximum economy and dispatch . . . at St. Louis, Mo.; Houston, Tex.; Birmingham, Ala.; Pittsburgh, Pa.; Toledo, Ohio; Portsmouth, Va.; Rochester, N. Y.

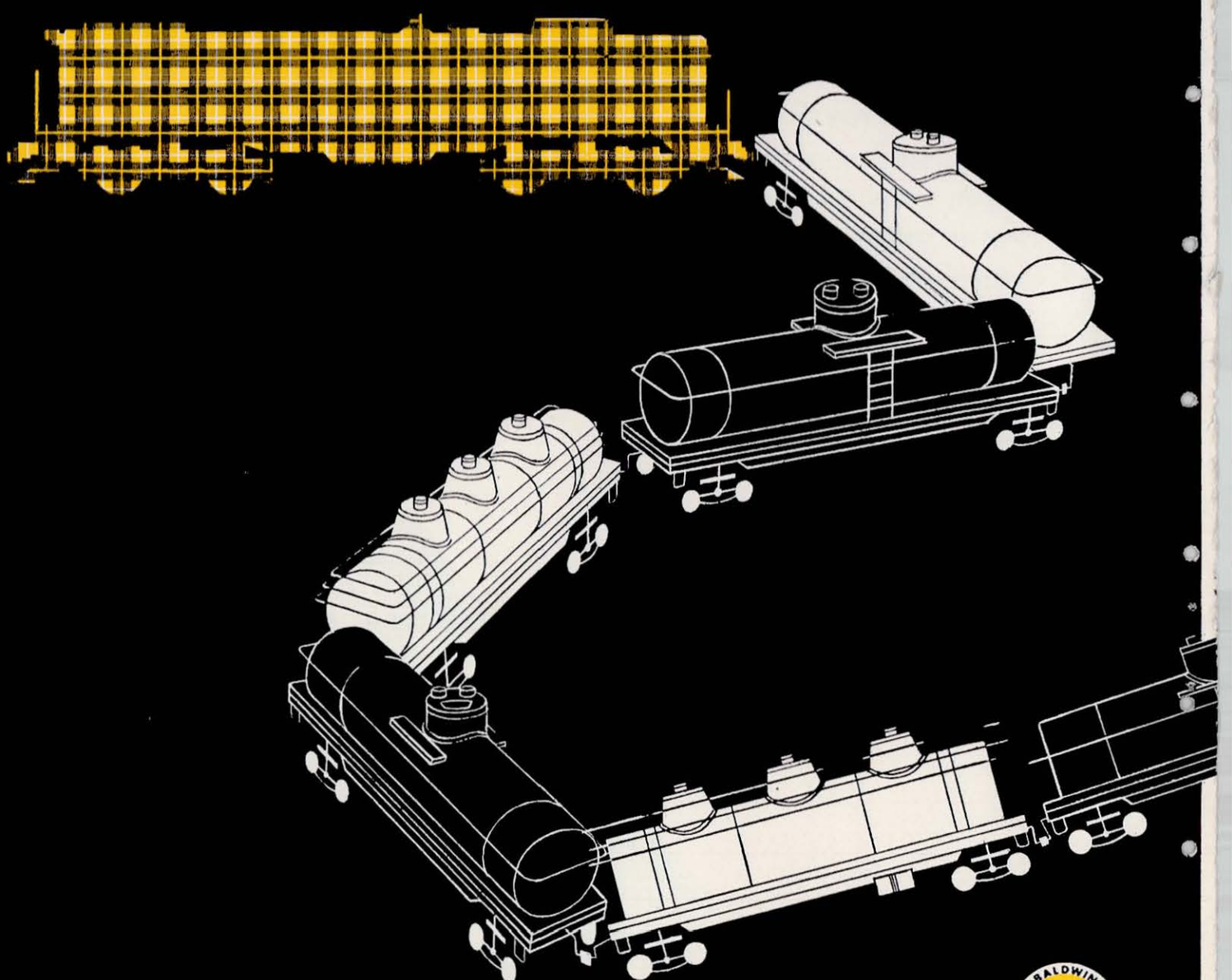
Conversion reduces cash outlay for new wheels and inventory expense.

Conversion is applicable to your new car purchases. Savings in first cost will be realized throughout car life.

Still the best buy!



For additional information, use postcard on pages 59, 60

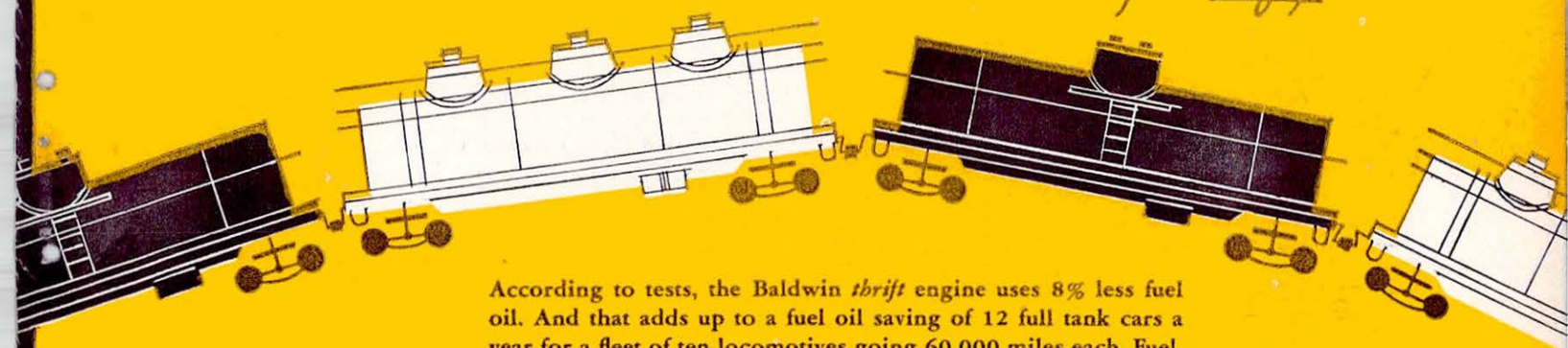


BALDWIN
BLH
LIMA-HAMILTON

WESTINGHOUSE

You'll Measure Fuel Savings in Tank Cars with Baldwin Locomotives

. . . they're thrifty!



According to tests, the Baldwin *thrift* engine uses 8% less fuel oil. And that adds up to a fuel oil saving of 12 full tank cars a year for a fleet of ten locomotives going 60,000 miles each. Fuel, incidentally, that you don't have to . . . *buy!* . . . *haul!* . . . *store!* . . . *protect!* . . . *handle!*

BALDWIN-Westinghouse

DIESEL-ELECTRIC LOCOMOTIVES

ANNUAL REPORT—1951

THE NEW YORK CENTRAL RAILROAD COMPANY

The events of 1951 form a mixed picture for the Central, with the long-term implications more encouraging than the results as seen at short range.

We achieved further substantial improvement of our physical plant, contributing both to efficiency and to the quality of our service. We showed gains over 1950 in traffic hauled and in revenues. However, chiefly because of two major adverse factors, the year's financial outcome did not fully reflect the benefit of these advances.

Strike takes revenue toll

The Jan. 30-Feb. 8 strike of yard men at key rail centers throughout the country hit the Central particularly hard. More than a dozen of our most important switching centers were idled. The consequent loss of revenue caused a $10,079,293 net deficit for the month of February.

Impeding recovery—and depressing the earnings picture throughout the entire year—was the fact that freight rate increases authorized by the Interstate Commerce Commission were inadequate to meet greatly increased costs of operation.

With these two factors chiefly responsible, net income in 1951 declined to $14,718,720, or $2.23 per share, from $18,315,170, or $2.84 per share, in 1950. The 1951 showing represents a profit of only 1.8 cents on each dollar of total revenues, while net railway operating income for the year represents a disappointing return of only 2.1 per cent on depreciated investment.

From these inadequate earnings, the Central's board of directors voted a dividend of 50 cents per share, which was paid Jan. 15, 1952, to stockholders of record Dec. 26, 1951. The necessity of maintaining sufficient cash with which to meet continuing payments for essential improvements precluded the declaring of a larger dividend.

Improvements continued

We continued our drive to control costs and improve service by betterments to the physical plant and constant attention to operating methods. Acquisition of more new diesel-electric locomotives, new freight and passenger cars including diesel rail passenger cars, modernization of major freight yards and of shops, and further roadway and signaling improvements are among the principal steps taken toward those ends.

These and other essential additions and betterments were achieved with only a moderate 3.8 per cent increase in total indebtedness. New obligations totaled $66,279,910. As a substantial offset, the Central retired $31,570,085 in older debt, including debt of lessor companies and amounts due New York State in grade crossing eliminations. Total outstanding debt of the Central and lessor companies as of Dec. 31, 1951, amounted to $949,860,317.

Rates lag behind costs

The railroads in 1951 sought general freight rate increases vitally needed to offset rising costs. A petition, filed with the Interstate Commerce Commission in January, was amended in March to reflect further cost increases. As amended, it sought rates 15 per cent above the level authorized in September, 1949. The Commission, in a decision effective in late August, granted less than half the increase sought.

In October the railroads reinstituted their request for the full 15 per cent. Hearings and arguments were completed Feb. 29, 1952, and the Commission's decision is awaited. Meanwhile, the need for permanent relief from the lag between rising costs and compensatory rates has received Congressional attention with the introduction early this year of legislation directed to that end.

Mail pay is increased

Recognizing the increased costs borne by the railroads in the transportation and handling of mail, the ICC in November prescribed increased rates of payment to the railroads for this service. The new rates were made retroactive to Jan. 1, 1951.

There was an important development in the so-called "divisions" cases, brought by the eastern railroads in 1947 to secure their fair share of through freight rates on traffic moving between eastern and southern, and eastern and southwestern, territories. The ICC examiners who conducted hearings in the cases have filed recommendations supporting, in principle although not in degree, the position taken by the eastern roads. A final decision by the Commission is expected later this year.

Hope seen for fairer treatment

The prospect for fairer treatment of the railroads—in rates, and in the question of subsidy and preferential regulation for competing forms of transport—has measurably brightened. Among several recent encouraging signs is the "progress report" issued by the Senate subcommittee studying domestic land and water transportation.

This document, pointing out major discriminations against the railroads in national transportation policy, promises to serve as a powerful focusing agent for a growing public and official awareness of our industry's problems.

Increased interest encouraging

It is encouraging to find stockholders taking an increasing interest in the Central. Attendance at the 1951 annual meeting, exceeding 450, was larger than ever before. Stockholder participation set a modern-day record for the Central as 79.3 per cent of the company's shares were voted in person or by proxy.

Future holds promise

The uncertainty of several key factors makes the future unusually difficult to gauge. If further inflation occurs, it will be mirrored in our costs through higher materials prices and through wage agreements tied to the cost-of-living index. A strike by three operating employes' unions in March has already cut into 1952 revenues.

On the favorable side, the Central's traffic volume in 1952 should remain high. Granted a realistic correlation between rates and expenses, equitable adjustment of freight rate divisions, no drastic further inflation of costs or further labor difficulties, and continued progress toward a fair national transportation policy, the Central's 1952 outlook is promising and long-range prospects are even brighter.

G. METZMAN,
President

March 20, 1952

For copy of Annual Report containing Comparative Income Account, Balance Sheet, etc., address Public Relations Dept., New York Central System, 466 Lexington Avenue, New York 17, N. Y.

(Advertisement)

for 75 *years*

THE LARGEST SUPPLIER OF RAILROAD CAR WHEELS

Griffin

GRIFFIN WHEEL COMPANY

410 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

TACOMA • LOS ANGELES • SALT LAKE CITY • DENVER • ST. PAUL • KANSAS CITY
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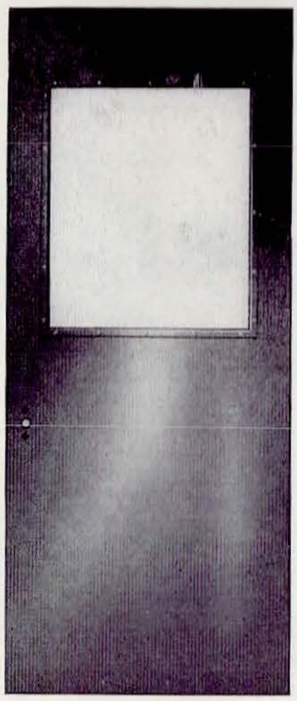
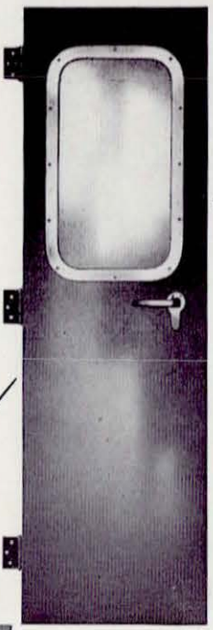
Member ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

Listen to the RAILROAD HOUR: NBC Network, Monday Nights

you show good judgment when you specify MORTON hollow metal DOORS



Passenger Car Vestibule Side Door



Locomotive Cab Doors

...ANY SIZE OR STYLE

...ANY METAL

...ANY SPECIFICATIONS

...ANY USE

Whenever you are in the market for any type of passenger train hollow metal doors, think *first* of Morton. Old-timers in the railroad field have seen Morton Hollow Metal Doors stand up throughout many years of rugged service. They know that, by any standard, it's just plain good judgment to "specify Morton."

Experience—Morton has earned its unchallenged reputation for leadership over a period of 40 years. Today, as always, we refuse to compromise with quality. Our key mechanics have been on the job with us for many years—their skill and integrity are built into every door built in our plant.

Proved Design—Morton Doors are designed and fabricated to assure exact dimensions as specified. Their design provides *extra strength without extra weight*—a distinct advantage. Interior surfaces are painted in two operations; this makes them highly weather-resistant under all service conditions.

Doors to Suit Your Needs—Passenger train car doors—diesel locomotive cab doors—we are in a position to fabricate them all; we can supply sizes from the smallest locker door to the largest baggage car door! Specify your own metal—aluminum, mild steel, stainless steel—and we'll make the doors you want. Hardware and glass provided if specified.

Cost You Less in the Long Run—Initial costs of Morton Doors are moderate, but that's not the only cost advantage! Replacement and maintenance costs are lower in the long run, thanks to the unexcelled quality which is built into every door we produce.

Anti-Pinch Shields

These simple closures prevent injury caused by catching hands between hinge-edge of closing door and jamb. They are easily attached and do not detract from attractive appearance or efficient door operation.

MAKERS OF OPEN-GRIP RUNNING BOARDS AND BRAKE STEPS • KASS SAFETY TREAD • VESTIBULE DIAPHRAGMS AND CURTAINS • METAL DOORS • STEEL FLOORING . . . AND A WIDE LINE OF PRODUCTS FOR RAILROAD USE

MORTON
MANUFACTURING COMPANY
5125 West Lake Street, Chicago 44, Illinois

In addition to a dependable supply of power during non-generating intervals on the road for the lights, air-conditioning equipment and a variety of electrical conveniences on modern streamlined passenger cars, Edison batteries afford the utmost economy of operation.

Proved Economy

A recent analysis of ALL EDISON car-lighting batteries replaced by one railroad during a period of 12 months showed that the batteries had given an average of 26.18 years of service.

A similar analysis of ALL EDISON batteries replaced by another railroad during a period of 12 months—from both air-conditioned and non-air-conditioned cars—showed an average of 18.04 years of service.

The railroads in this group have more than 2000 sets of EDISON batteries in operation on passenger-train cars.

The same construction and operating principle which result in long life also result in economy in respect to cell repairs. We have recently totaled the amounts billed by us for cell repairs, tools, paint and electrolyte during a 12-month period to the same group of railroads. The amounts were found to range from $2.46 per battery per year to $6.99 per battery per year.

It has been said that "one swallow does not make a summer" and, similarly, one battery that delivers long life and low cost could conceivably be an exception. But the records of more than 2000 sets of batteries are likely to be representative, and we believe may fairly be presented as PROOF of economy. Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey. Thomas A. Edison of Canada, Limited, Montreal.

You can always rely on

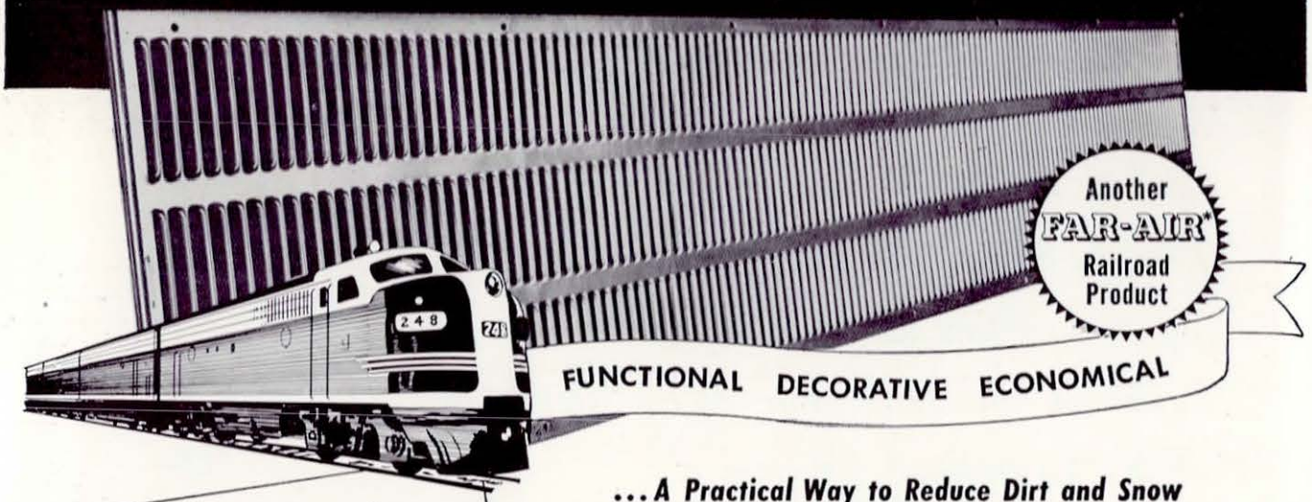
EDISON

Nickel • Iron • Alkaline

STORAGE BATTERIES

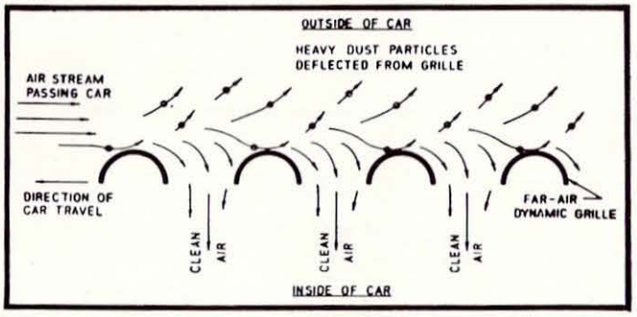
LIGHT-WEIGHT BATTERIES FOR LIGHT-WEIGHT CARS

FAR-AIR* DYNAMIC GRILLE



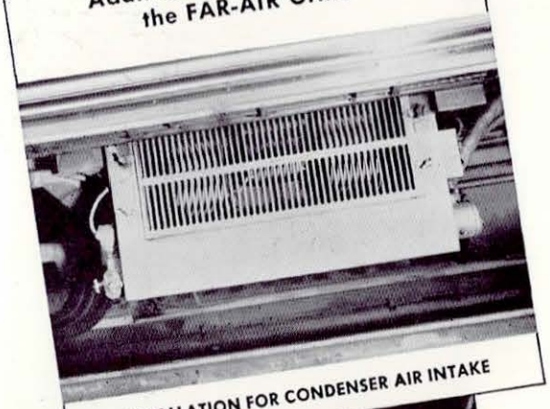
...A Practical Way to Reduce Dirt and Snow Loads in Air Filtering Systems!

The Far-Air Dynamic Grille was developed by Farr Engineers to eliminate the foreign particles from air induction systems on moving equipment. The efficiency depends on the speed of the locomotive—the higher the speed the more efficiently the grille performs. As shown in the accompanying diagram, the louvres in the grille effectively buff off foreign particles such as dirt and snow without interfering with air requirements. This virtually eliminates dirt and snow clogging the face of filters or impairing the operation of other equipment.



Far-Air Dynamic Grilles are practical for a number of applications and can be furnished in a variety of sizes. Qualified field engineers are available to discuss your particular requirement. Write today for complete data on the Dynamic Grille and other railroad products. Farr Company, P.O. Box 10187 Airport Station, Los Angeles 45, California.

Additional Applications for the FAR-AIR Grille



INSTALLATION FOR CONDENSER AIR INTAKE

INSTALLATION FOR SUB-COOLER AIR INTAKE

*Trade Mark Reg.

FARR COMPANY *Manufacturing Engineers*

Los Angeles • Chicago • New York

Mf'd under license by Control Equipment Co., Ltd., Montreal, Canada.

In addition to a dependable supply of power during non-generating intervals on the road for the lights, air-conditioning equipment and a variety of electrical conveniences on modern streamlined passenger cars, Edison batteries afford the utmost economy of operation.

Proved Economy

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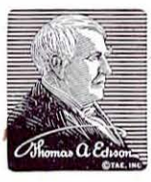
You can always rely on



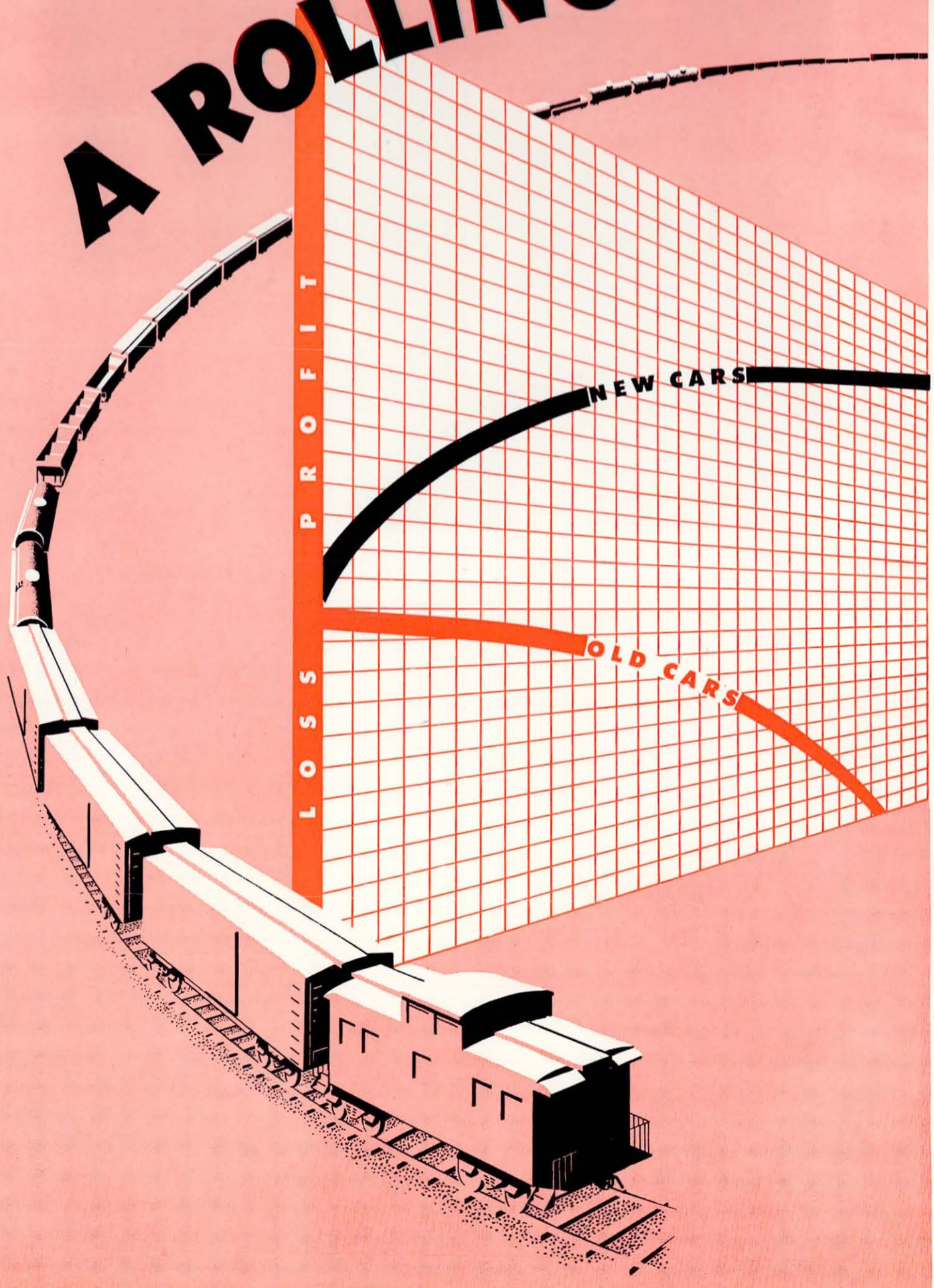
EDISON

Nickel • Iron • Alkaline

STORAGE BATTERIES

LIGHT-WEIGHT BATTERIES FOR LIGHT-WEIGHT CARS

A ROLLING CAR



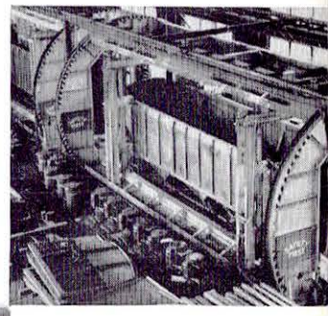
GATHERS NO LOSS

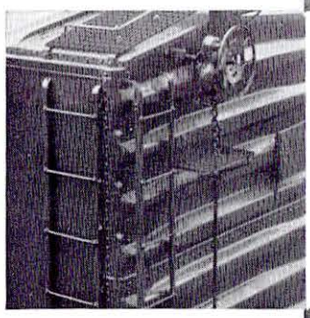
Profit in transportation comes from the "in-service" record of your rolling stock. A freight car carrying an "out-of-service" tab in the files is obviously building up an operating loss. To keep the balance in favor of profitable operations, your old car equipment should be replaced with new.

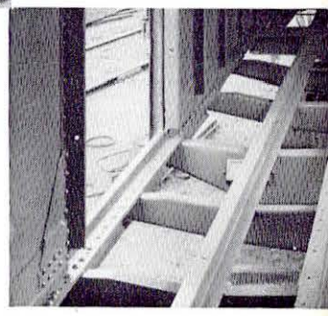
A.C.F. facts on freight cars. In buying new equipment, consider the importance of standardized design...assembly-line fabrication methods... operating performance...and lower maintenance costs offered by A.C.F.-built cars. A.C.F. car building facilities, strategically located, offer many cost-saving advantages that cannot be duplicated by any Railroad...nor is capital investment in shops and tooling beyond normal maintenance needs wise for the majority of Roads.

CHECK THESE A.C.F. ADVANTAGES AVAILABLE IN CAR EQUIPMENT

Assembly-line building technique
All-welded construction for rugged quality
Standardized design for lower maintenance cost
Dimensional accuracy for guaranteed interchangeability
Production speed for quick delivery
Operating dependability for profitable "in-service" life







Discuss your freight car needs with an A.C.F. Representative. A practical purchase plan is available to facilitate the addition of new car equipment *now*. American Car and Foundry Company, New York, Chicago, St. Louis, Cleveland, Philadelphia, Washington, San Francisco.

CAR BUILDERS TO AMERICA'S RAILROADS

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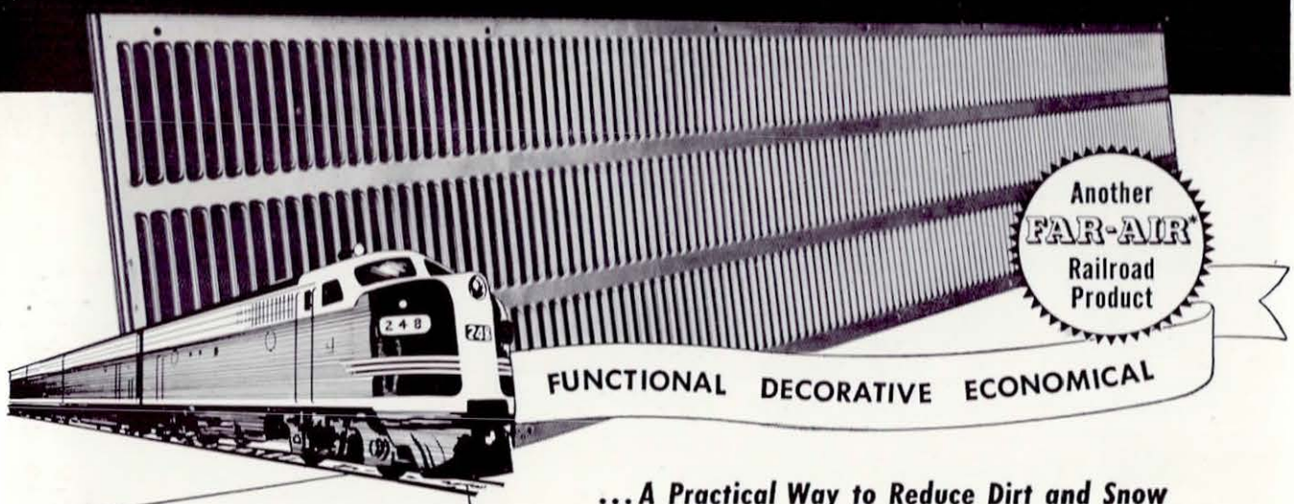
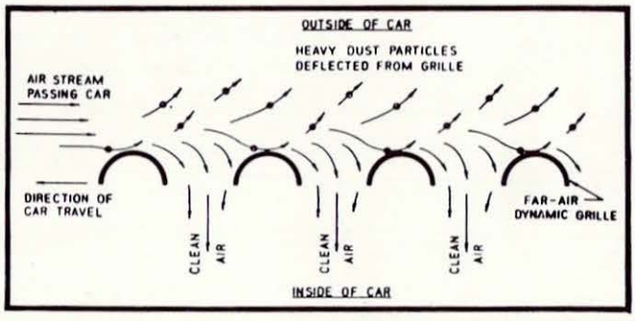
FAR-AIR* DYNAMIC GRILLE



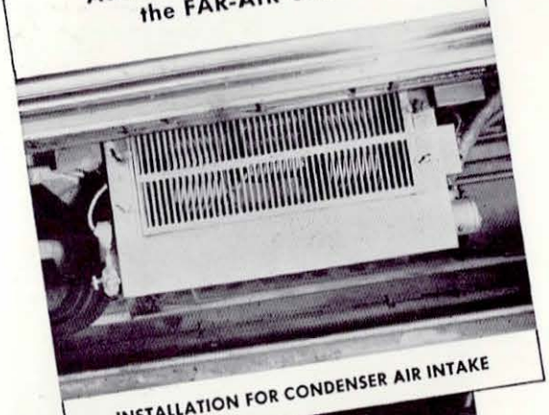
...A Practical Way to Reduce Dirt and Snow Loads in Air Filtering Systems!

The Far-Air Dynamic Grille was developed by Farr Engineers to eliminate the foreign particles from air induction systems on moving equipment. The efficiency depends on the speed of the locomotive—the higher the speed the more efficiently the grille performs. As shown in the accompanying diagram, the louvres in the grille effectively buff off foreign particles such as dirt and snow without interfering with air requirements. This virtually eliminates dirt and snow clogging the face of filters or impairing the operation of other equipment.



Far-Air Dynamic Grilles are practical for a number of applications and can be furnished in a variety of sizes. Qualified field engineers are available to discuss your particular requirement. Write today for complete data on the Dynamic Grille and other railroad products. Farr Company, P.O. Box 10187 Airport Station, Los Angeles 45, California.

Additional Applications for the FAR-AIR Grille



INSTALLATION FOR CONDENSER AIR INTAKE

INSTALLATION FOR SUB-COOLER AIR INTAKE

*Trade Mark Reg.

FARR COMPANY *Manufacturing Engineers*

Los Angeles • Chicago • New York

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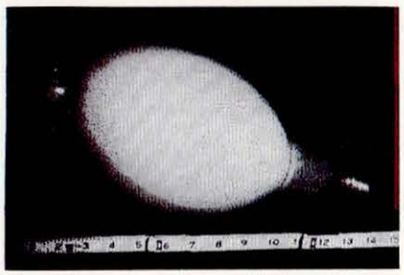


1,000-Watt Fluorescent Mercury Lamp

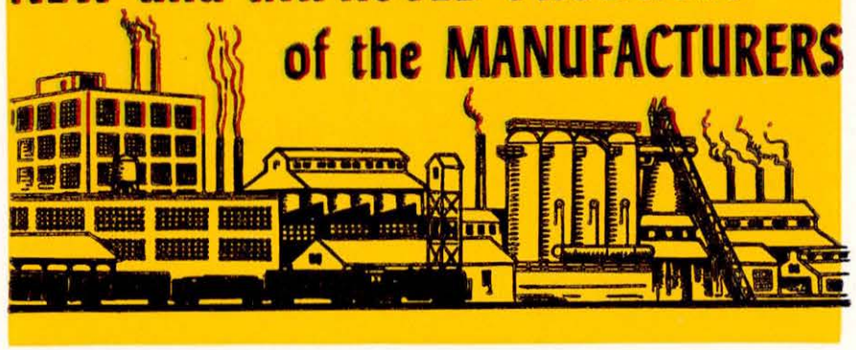
To meet the trend toward larger manufacturing spaces, higher mountings and higher lighting levels both indoors and outdoors, Westinghouse Electric Corporation, Pittsburgh, has made available a 1,000-watt C-H12 fluorescent mercury lamp.

Similar to the 400-watt, J-H1 lamp, this new light source provides a golden white light suitable for all types of lighting service except where close color discrimination is involved. Its ballast is the same as that used for the 1,000-watt A-H12 lamp, and its BT-56 bulb has a specially developed isothermal shape said to allow the phosphor coating to function at maximum efficiency.

When activated by ultraviolet light from the quartz arc, the phosphor gives off red light. This blends with the blue-green-white light from the mercury arc, to give a golden white light with approximately the same color quality as a mixture of equal wattages of mercury and incandescent light. Inside frosting of the bulb provides better diffusion of light and greater uniformity of color.

For use outdoors, fixtures should be designed to protect the bulb from driving rain or moisture-laden insects.

NEW and IMPROVED PRODUCTS of the MANUFACTURERS



ies-wound d.c. motors which reportedly have high starting torque and overload capacity. The accelerator pedal provides three forward and reverse speeds in proper sequence. Maximum speed (at 24 volts) varies from 4 to 6 m.p.h. when loaded. The trail axle is ball-bearing controlled-caster type for ease of steering and is said to eliminate transmission of road shock to the steering linkage. The "Porter," made by the Automatic Transportation Company, Chicago, is furnished in two lengths — 109 in. overall and 91 in. overall.

Bearing Lubricant

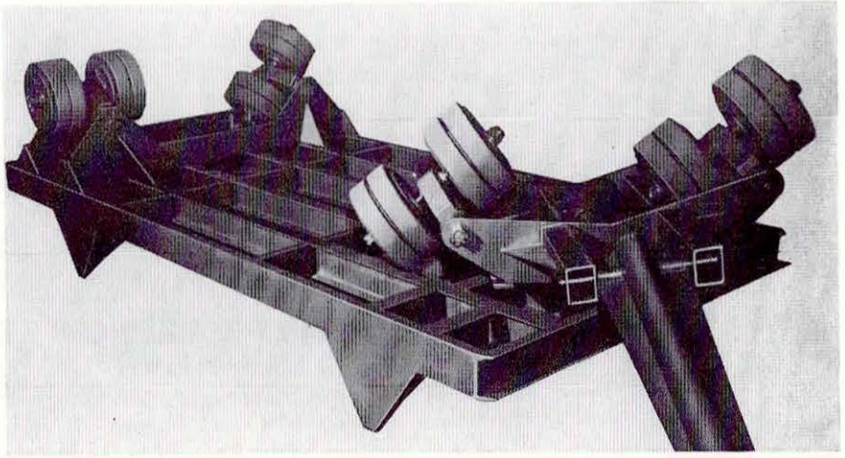
An improved multi-purpose grease for use in general industrial applications—Texaco Multifak 2 Grease—has been introduced by the Texas Company, New York. It is recommended for use in situations which require one high grade multipurpose grease for a variety of operations.

Research officials responsible for the new formulation point out that Multifak has excellent shear stability, outstanding resistance against water washing, and good pumpability at low temperatures. It is highly suitable for bearing lubrication over a wide range of temperatures and can be used efficiently for an extensive variety of industrial lubrication jobs.

The Model 78 SP electric adding machine, manufactured by the Underwood Corporation, New York 16, is available in eight-column totaling capacity.

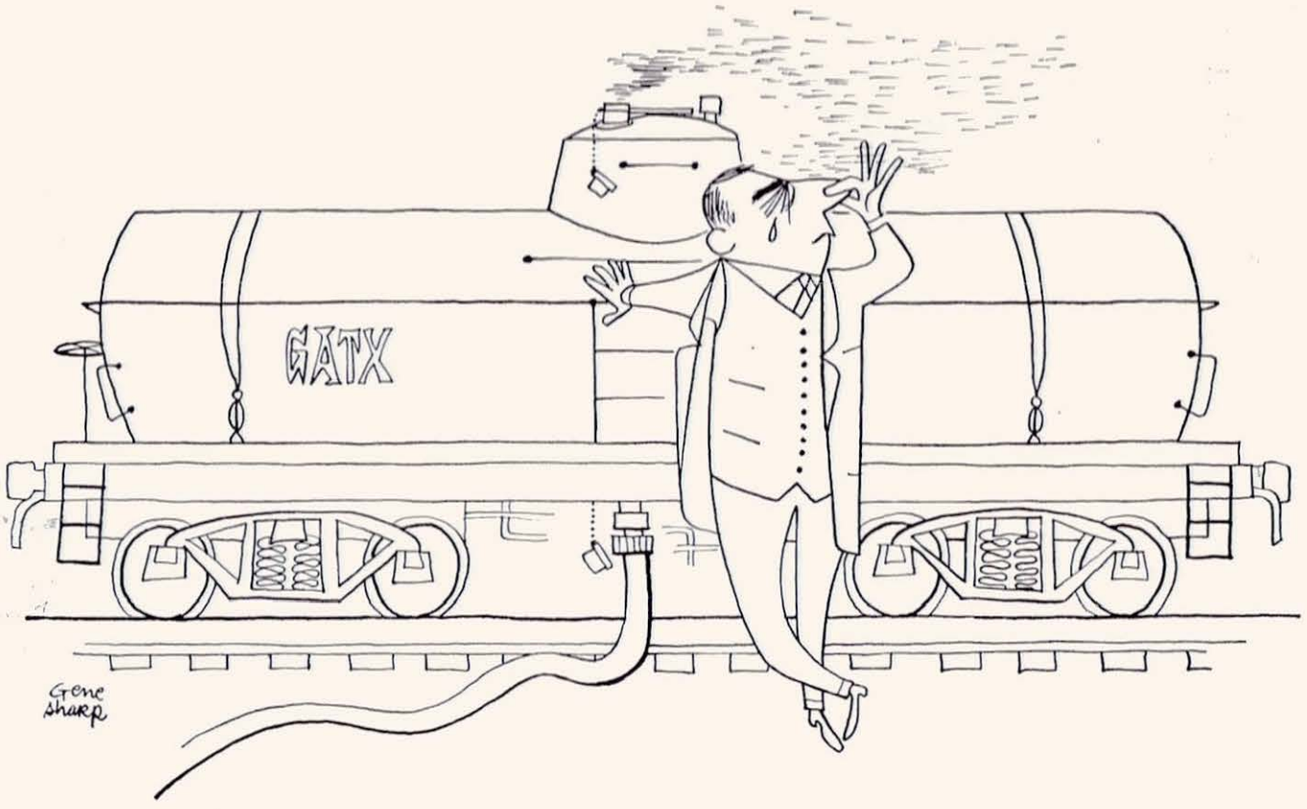
All-Purpose Platform Truck

With a load platform only 14¾ in. from the floor, the Automatic "Porter" Model FP-20 platform truck can carry a load of 2,000 lb. Its load area totals 23 square feet. Stake pockets at the sides and rear make it possible to use racks for handling irregular loads. The driver's seat and battery compartment are positioned so that long loads — such as pipe or bar steel stock — can be accommodated. Drive is by two ser-



The wheel suspension of this trailer, with each four wheel truck mounted on a heavy swivel, provides uniform load distribution at all times when the trailer is being towed over rough areas. This unit, manufactured by the Kilbourne & Jacobs Manufacturing Co., Columbus 16, Ohio, has a capacity of 15 tons.

THE CARE AND NURSING OF TANK CARS



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ONLY A BEGINNING

There is a temptation to be more exultant than the facts justify about the decision of the Interstate Commerce Commission in granting the railroads practically all that they asked for in the Ex Parte 175 rate case. The victory is significant only by comparison with previous treatment in rate-increase cases which the railroads have received at the hands of the commission. The commission must, however, be duly credited with, this time, having taken resolute action in conformance with the facts—despite the irresponsible opposition of bureaucrats from other government departments who intervened.

By comparison with the latitude enjoyed by other basic industries in getting prices to match their costs, the railroads are still suffering intolerable and utterly unjustifiable restrictions. It doesn't take a prolonged judicial process to establish the simple fact that a producer, if he is to be kept solvent, needs to raise his prices to parallel indubitable increases in the costs of the ingredients which go into his product.

It is unrealistic to the point of imbecility that the railroads should be delayed a year or more after increased costs are incurred before they can make parallel increases in their prices. By this intolerable delay, hundreds of millions of dollars of revenue are lost, possibly beyond recovery. It is just that the opportunity to recover these losses be given the industry, but there can never be any guarantee that such an effort will succeed—because, in the course of so many months, traffic conditions often change radically. Present traffic, indeed, is running lighter than it did a year ago; and, if traffic should persistently decline, it might not be possible for the railroads to collect from current traffic the earnings which, in justice, they ought to have derived from traffic moved at an earlier period.

Thus, the belated permission granted by the commission to make the Ex Parte 175 rate increases should not be allowed to diminish anybody's zeal in behalf of changes in the rule of rate-making, as embodied in the pending bills S.2518 and S.2519. While the enactment of these measures would undoubtedly be another case of "locking the stable after the horse has been stolen," there will be other horses, and possibly other horse-thieves too, unless the law restrains them, as S.2518 and S.2519 would do.

The concurring opinion of Commissioner Mitchell in the case epitomizes the railroads' financial situation: "They have not had sufficient earnings to justify investment in their stocks." He pointed out further that they haven't been able to sell long-term bonds, either, and that the only avenue of outside financing open to them has been the sale of equipment obligations.

The Transcending Fact

This is the fact about the railroad situation, and the government's relationship to it, which transcends all other governmental relations with the industry. What is the use of carefully supervising the education and behavior of an adolescent if, at the same time, the lad is being condemned to death by slow starvation—so that his education and nurture, be they ever so nearly perfect, are never going to have any practical value? The Interstate Commerce Commission has heretofore been so deeply concerned lest the railroads earn a nickel too much that it has overlooked entirely its obligation to give the patient enough latitude in feeding himself to avoid starving to death. Perhaps the commission has begun to see the error of its ways. It would be safer, however, by the enactment of S.2518 and S.2519, to make more explicit the regulators' primary duty to permit the survival of the industry.

The fact that the increases are granted only as "surcharges," and not permanently, should serve as a fur-

ther limitation upon over-enthusiasm as a result of the decision. If the new level of rates is to be retained, it will have to be justified all over again by further expensive and voluminous testimony to prove a case no less obvious than that two plus two equal four. This is an unwarrantable requirement for the waste of high-priced talent, but the requirement may serve the unintended constructive purpose of keeping the railroads on the alert to win friends for S.2518 and S.2519—an effort which might otherwise be allowed to cool off in deference to the belief that the leak in the roof doesn't need fixing as long as it isn't raining.

Right to Reduce, Too

This paper has never subscribed to the doctrine which the railroads are often, and usually erroneously, accused of believing—namely that "a higher rate level will cure all our troubles." It isn't just the right to increase rates that railroads need, but also the right to reduce rates—wherever economically justifiable and competitively advantageous—without such changes being denied or interminably delayed, because of some tenuous allegation of possible "discrimination."

With all of today's alternative methods of transportation, including private transportation, it is impossible for the railroads to practice discrimination to anybody's serious economic disadvantage, even if they desired to do so and if all regulation were abolished. The restrictions of the "fourth section" cannot be applied to the trucks, as a practical matter, and cannot be applied to private transportation at all. To continue such a limitation on the railroads is an act of pure sadism—the infliction of suffering for no purpose whatever except the pleasure of the people who do the inflicting.

The Only Strategy

How far the railroads have still to go in recovering their freedom to survive is strikingly apparent when their situation is contrasted with that of the steel industry. The controversy in steel arose primarily because the government price regulators would not authorize simultaneous and compensatory increases in steel prices to accompany wage increases recommended by a government board. What the steel industry is objecting to, with such effective and justifiable indignation, is not any worse than the standard treatment provided for the railroads. To the extent that the ire of business interests and the general public can be aroused against the treatment of the steel industry, at least twice as much wrath could and should be generated against the much worse kicking around that the railroads usually get. The only strategy for business to follow which gives any promise of protection against general application to all business of what has been done to the railroads, and now to steel, is for business to make common cause when such treatment is handed to anybody.

THE LABORATORY GETS CLOSE TO THE SHOP

To those whose railway experience has largely been associated with steam motive power, the extent to which the laboratory has become a routine factor in the control of locomotive maintenance perhaps typifies more strikingly than any other one feature of diesel-electric locomotive service the marked changes which the advent of the diesel has made. The facility with which analyses of the content of lubricating oil samples can be determined spectrographically makes possible regular checks of diesel engine conditions, by way of the oil analyses, which give warning of trouble a long time before it approaches the failure point. Thus are both reliability of service and economy of maintenance expenditures advanced.

Use of the spectrograph and the densitometer is well under way. With these instruments quantitative analyses are quickly made which disclose amounts of such items as silica, lead, copper, chromium and iron, the relative amounts of which are clear indices of why and where undue wear is taking place. Experience has shown what action should be taken, if action is called for.

And now, even before the spectrographic method of analysis has got more than a good start, the electron microscope, which adds tremendously to information which can be made available concerning diesel fuels and lubrication oils, has become available to the railroads. The use of this instrument is already under way in the laboratory of the Denver & Rio Grande Western, as is set forth in an article on another page in this issue. Here it is being used essentially as a research instrument, but the coordination of the microscopic patterns (at 45,000 magnifications) of fuels and lubricating oils with their performance in service is furnishing a fund of valuable information for application in the control of maintenance.

Applied to research, this instrument promises to expand present knowledge of the nature of fuel oils and what can be done with those which are not now considered suitable for diesel locomotive use. Its use in studying the nature of additives is already illuminating the twilight which surrounds that subject in the minds of many railroad men.

Such research is greatly needed. There is every reason to believe that the fuel supply available for railroad diesel motive power, if confined to specifications now generally adhered to, will tend to shrink, particularly should there be a spread in active military operations. How to increase stability of fuels outside the pale of this specification, what are the limits beyond which no attempt should be made to go in lowering cetane number and increasing sulphur, and what relation, if any, should be recognized between a specific fuel oil and the lubricant to be used with it for oils from different fields—answers to such questions cannot be found too rapidly for the welfare of the industry.

A Study of . . .

Illinois Central Suburban Operations

A summary of operating and financial results attained with the use of multiple-unit electric trains on independent properties

The Illinois Central today handles at Chicago the second largest commuter traffic in the country—some 135,000 passengers per business day in 399 high-speed multiple-unit electric trains. It does so on properties which are almost entirely devoted to commuter service only and with rolling stock which is used exclusively for commuter business. It is therefore better able than most roads to segregate the costs attributable to handling commuters. At the same time the road has a sufficient problem in allocating joint costs to make it typical of the majority of suburban operations. Direct expenses account for 86 per cent of the total cost of operations, apportioned expenses the remaining 14 per cent.

The I. C. has one thing in common with other commuter roads—its principal problem is obtaining fares high enough to meet the ever-increasing cost of furnishing its services. And, like other suburban railroads, the I. C. has been far more successful in giving its patrons good service than it has been in obtaining adequate fares.

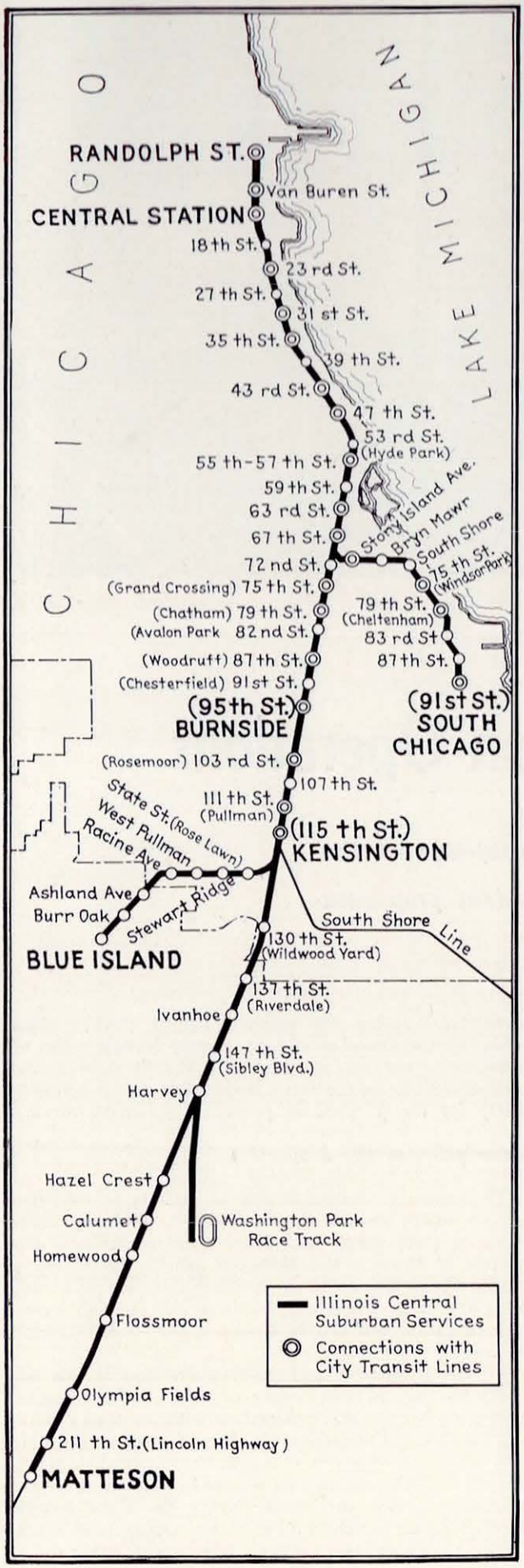
What success has been attained in keeping the operation from going even deeper in the red is in no small measure due to the vigorous policy pursued by the management toward this objective and by the thorough way rate increase cases have been prepared. Illinois Central management takes the entirely logical position that suburban operations should not merely be non-losing or break-even ventures, but that they should yield a reasonable return on the large investment in the property solely for the purpose of providing suburban service.

Description of the Properties

The property devoted largely or entirely to suburban service comprises three routes with a total of 108.09 miles of main tracks and 21.36 miles of sidings. The longest of these is the Matteson branch, 29.08 miles. Beginning at the northern terminal this line has three main tracks to 9th street, six from 9th to 50th street, four to 115th, and two to Matteson, the southern terminus.

All street, highway and railroad crossings in this territory are carried either above or below the I. C. tracks. There are few physical connections with the road's facilities for through passenger and freight service. The only use of any consequence to which these suburban tracks are put for other operations is a small amount of freight switching service performed during the night outside of rush hours on 13.08 miles of the westernmost track.

The remaining two routes are in reality branches of



Suburban trains operate on a separate electrified right-of-way independent from trackage used for through movements.

this long main route. The South Chicago branch leaves the main suburban line at 67th street and extends 4.93 miles to South Chicago. It is double tracked with all street crossings at grade. Two are protected by automatic gates and 38 by manually controlled gates.

The Blue Island branch is 4.28 miles of single track which leaves the main line at 116th street and runs westward to Blue Island. Street crossings are at grade with protection provided by two manually controlled and six automatic gates and 15 flashing light signals.

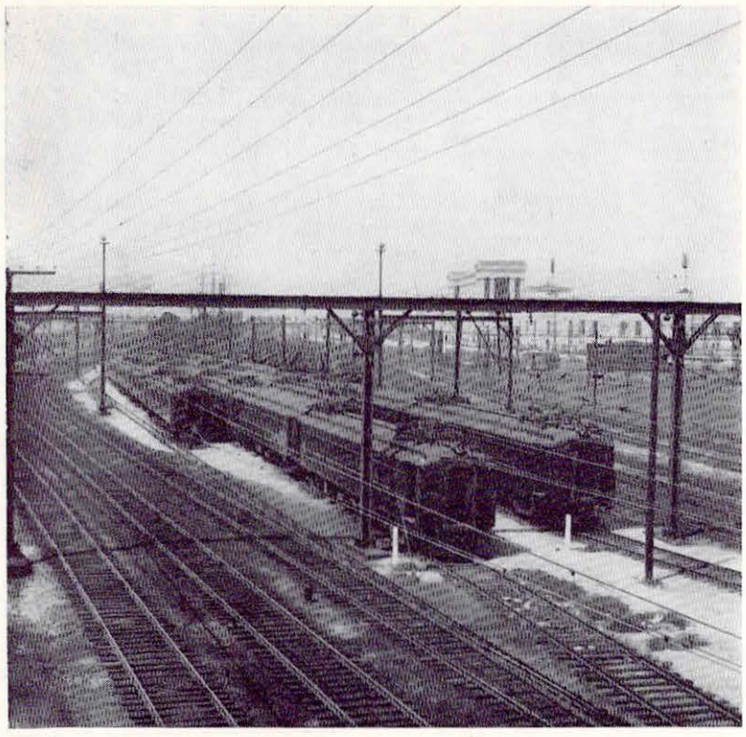
The main line electrified suburban service is completely segregated from through passenger and freight service. A little freight business is conducted on the South Chicago branch (3 per cent wheelage) and on the Blue Island branch (11 per cent wheelage).

Mechanical inspection facilities for the rolling stock, both power and trailer cars, are located at nine points —Randolph street, Van Buren street, 83rd street, Matteson, Kensington, Blue Island, South Chicago, 18th street and Burnside. At 16th street there are pits for light repairs. Heavy repairs are made at Burnside shops, a major system heavy repair point for all types of passenger cars.

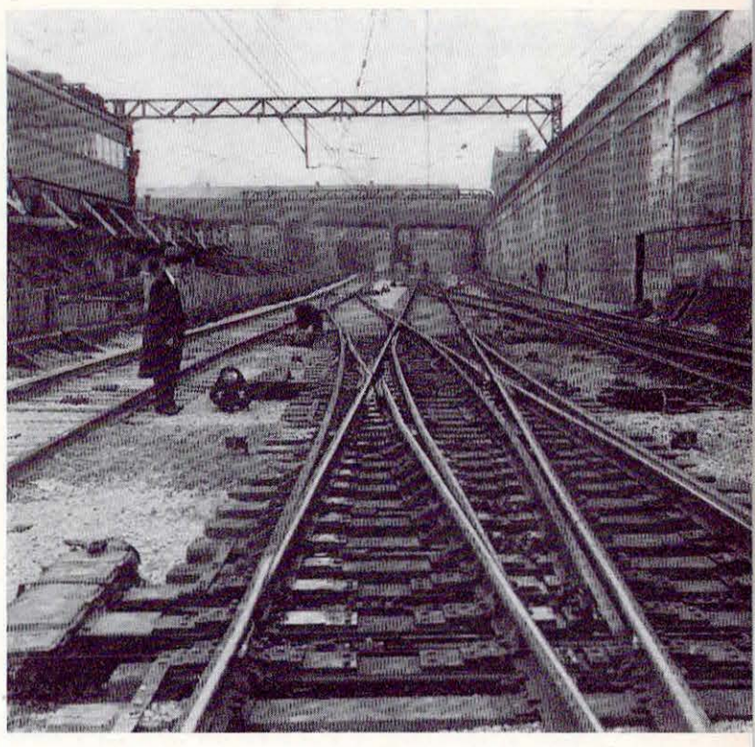
A total of 414 acres are used in suburban service. All of this land was purchased with two exceptions. A little over one mile of right-of-way in the downtown section, a mile of trackage on the South Chicago branch and a half mile on the Blue Island branch are laid on easements by agreement with the city of Chicago; a small part of the remainder was acquired through land grants.

Investment in an Electric System

The original cost of the electrified suburban system in round figures was $33 million, excluding land and rights. The cost of reproduction new has been estimated



Idle equipment waits in the 18th street yards to go into service during the rush hours.



Throat of Randolph Street terminal, showing switches, signals and snow-melters.

by the carrier at $67 million, and the cost of reproduction new less depreciation at $44 million. The carrier estimated the present value of land and rights at $9½ million, while the total of working capital plus "going concern value" amounted to slightly under $5 million. The Interstate Commerce Commission did not agree with the carrier's estimate, and reduced "for the purpose of these proceedings" (a hearing for fare increases in 1949) the value of the property devoted to the suburban service to about $35 million, with the reasoning that this amount is substantially the same as if based on "the best evidence we have as to the original cost and depreciation upon the basis of the accruals by the petitioners, together with the present value of lands." It is obvious that the property value today should be considerably more than original cost.

Electric power is transmitted by an overhead system; no third rail is used. A compound catenary system for pantograph pickup covers 130 track miles, has an area of 850,000 circular mils, and is supported by 1,100 steel structures. Power is purchased from the local public utility and supplied through seven substations, with sectionalization by high-speed circuit breakers. Three-phase light and power lines and duplicate single-phase circuit supply lines are carried on all structures.

The system serves a total of 55 stations, all with platforms at car floor level. Buildings, warming houses or wind breaks are located at each, depending upon the passenger volume. Color light signals are used throughout the system with 164 on the main line and a total of 29 on the two branch lines. Seven interlocking plants are installed. Two of these are used 97 per cent for suburban service, two are used 77 per cent, and the remaining three from 50 to 68 per cent for controlling

COMPARISON OF SUBURBAN SERVICES WITHIN A DISTANCE OF THIRTY MILES

Railroad	Number of Routes	Number of Stations Served	Number of Trains Provided Rush Hours (Daily except Sat. & Sun.) 7:30 AM—9:30 AM 24-Hr. Period (Daily) 5 Miles	15 Miles	30 Miles	4:30 PM–6:30 PM 5 Miles	15 Miles	30 Miles	24-Hr. Period (Sun.) 5 Miles	15 Miles	30 Miles	Equipment Motive Power Used	Seating Cars in Service	Seating Cap. of Cars	Schedule Speeds by Types of Train Service Provided (Miles per Hour) Local 5 Miles	Local 15 Miles	Local 30 Miles	Express 5 Miles	Express 15 Miles	Express 30 Miles
CHICAGO AREA																				
I. C.	3	55	96	286	152	14	77	26	116	214	121	M.-U.	280	84	22	15-20	24		23-26	25-28
C. A. & E.	2	35		66	140		15	39		56	104	M.-U.	114	52-58		23-30	22-30		28-32	27-34
C. N. S. & M.	2	40		58	121		13	29		39	93	M.-U.	150	50-58		21-23	20-23			27-33
C. S. S. & S. B.	1	15			72			14			73	M.-U.	64	50-80						30-37
C. & N. W.	3	63	26	160	132	17	99	55	1	48	45	Steam	396	76 Av.	21-31	17-26	16-30	27	21-39	20-35
C. B. & Q.	1	26	63	71	71	25	27	28	30	30	30	Di.&Stm.	120	68-100	23-25	17-24	17-26	23-25	22-29	25-31
C. M. St. P. & P.	2	31		52	53		25	26		20	20	Steam	100	80		18-32	20-31		24-30	25-46
C. R. I. & P.	2	28		108	105		35	32		28	28	Di.&Stm.	124	86-100					19-35	19-34
N. Y. C.	1	16		12	12		4	4		6	6	Steam	25	84-90		26-32	18-31		25	30-36
BOSTON AREA																				
B. & M.	11	114	72	182	136	14	59	39	23	63	61	Di.&Stm.	250	78-84	20-28	17-30	18-31	25-31	22-41	25-40
N. Y. N. H. & H.	8	71		83	26		37	26				Di.&Stm.	150	80-92					18-31	22-30
NEW YORK AREA																				
D. L. & W.	4	43		262	169		75	54		115	73	M.-U. & Stm.	343	58-80		18-25	24-31		22-34	28-34
N. Y. N. H. & H.	1	12		86	99		17	30		37	37	M.-U.	186	78-120					26-30	
PHILADELPHIA AREA																				
P. R. R.	6	111	234	297	219	54	79	55	127	158	117	M.-U.	250	72-80	20-32	16-36	20-31	29-32	23-39	25-41

BREAKDOWN OF REVENUES AND EXPENSES FOR I. C. SUBURBAN OPERATIONS FOR THE YEARS 1949-1951

	Audited 1949 Revenues and Expenses	Audited 1950 Revenues and Expenses	Audited 1951 Revenues and Expenses
REVENUES & INCOME			
Ticket Sales and Cash Fares	$6,738,985	$6,549,062	$6,743,494
Other Passenger-Train Revenue	14,174	16,376	18,131
Advertising on Trains	23,144	18,188	22,069
Station Privileges	147,975	148,134	159,504
Miscellaneous Income	206,886	140,140	165,771
Rental of Equipment	769	.....	.....
Total Revenues and Income	7,131,933	6,871,900	7,108,969
EXPENSES			
Maintenance of Way and Structures	1,222,189	1,104,363	1,293,999
Maintenance of Equipment	1,449,269	1,339,172	1,397,621
Traffic	55,230	54,650	54,954
Transportation	3,757,799	3,857,355	4,160,808
General	285,970	302,168	314,436
Total Operating Expenses	6,770,457	6,657,708	7,221,818
NET REVENUE from Railway Operation	361,476	214,192	Def. 112,849
TAXES	697,326	688,177	790,568
NET RAILWAY OPERATING INCOME	Def. 335,850	Def. 473,985	Def. 903,417

HOW EXPENSE OF HANDLING SHORT HAUL PASSENGERS WAS COMPUTED FOR PROPOSED MINIMUM FARES

Total station expense:	
Operating expenses, payroll and ad valorem taxes	$ 1,261,738
Return on rate making value at 6 per cent	199,693
Total station expense	$ 1,461,431
Passengers carried	37,893,715
Average station expense including fair return, per passenger	3.86 cents
Total line haul expense:	
Operating expenses, payroll and ad valorem taxes	$ 5,768,867
Return on rate making value at 6 per cent	2,845,197
Total line haul expense	$ 8,614,064
Passenger-miles	384,340,607
Average line haul expense including fair return, per passenger-mile	2.24 cents
Expense for illustrative short haul (Randolph to 53rd street)	
Station expense	3.86 cents
Line haul expense (5.8 miles by $.0224)	12.99 cents
Average minimum expense including fair return per passenger excluding charter and income taxes	16.85 cents

	One Way	10 Ride	25 Ride	50 Ride
Proposed minimum fare	20.00 cents	19.00 cents	18.50 cents	17.00 cents
Less charter taxes (7% of gross revenue)	1.40 cents	1.33 cents	1.30 cents	1.19 cents
Less income taxes (5.66% of gross revenue)	1.13 cents	1.08 cents	1.03 cents	0.96 cents
Net proposed revenue from minimum fare	17.47 cents	16.59 cents	16.17 cents	14.85 cents

suburban trains. Somewhat over 800 employees are required to provide the suburban service.

The rolling stock which makes up the 200 daily trains in each direction for handling the 135,000 week-day passengers comprises 140 motor cars and 140 trailers. One motor car and one trailer couple together semi-permanently to form the basic unit. Each motor car and each trailer have operating controls in each end. Trains are made up of one to four motor-trailer combinations, or two to eight cars.

Each motor car has four 250-hp., 1,500-volt traction motors which give the motor trailer combination an acceleration of 1.5 m.p.h. per sec. and a balancing speed of 64 m.p.h. Electropneumatic brakes provide a deceleration up to 3 m.p.h per sec. Power is received through two pantograph collectors on each motor car, and all heating is electric with thermostatic control.

The cars have an overall length of 72 ft. 8 in. and an inside length of 60½ ft. Seating capacity is 84 passengers in 34 crosswise walk-over seats and two longitudinal seats in each end. All seats are rattan covered. Weights average a little over 70 tons for the motor cars and 45 tons for the trailers.

All cars are of steel construction with ventilated monitor-type roofs, aluminum alloy roof sheets and aluminum sheet finish inside the body of the car. Aluminum is also used for the two interior sliding doors at each end of the cars, and for the four exterior sliding vestibule doors which are operated by electric or pneumatic motors.

The cars have tightlock couplers with air and electrical connections. Uncoupling may be done electrically from inside the cab or by hand from along the sides of the couplers.

The initial reason for electrification of the I. C. suburban service was more for the accommodation of the city of Chicago to reduce smoke and to improve service than it was to effect savings or to attract additional revenue in sufficient quantities to justify the large cost of electrification. None the less, there are certain substantial advantages that result from electric operation. These are principally operating advantages which result from the use of multiple-unit equipment rather than locomotive-powered trains.

Economics of Multiple-unit Operations

While the operation of m.-u. equipment is no longer restricted solely to electric systems since the introduction of the diesel rail motor car, it can be considered as an advantage of electrification since the self-propelled non-electric rail motor car has been adopted for this type of service only to a very limited extent thus far. Actually, the operating advantages that stem from m.-u. equipment can be realized whether the power is received from an electric source outside the car or developed by a diesel engine within the car.

One of the principal advantages of m.-u. operation is superiority over locomotive-powered trains in acceleration. The rapid acceleration characteristic is helpful for both express and local runs, but particularly for fast local schedules.

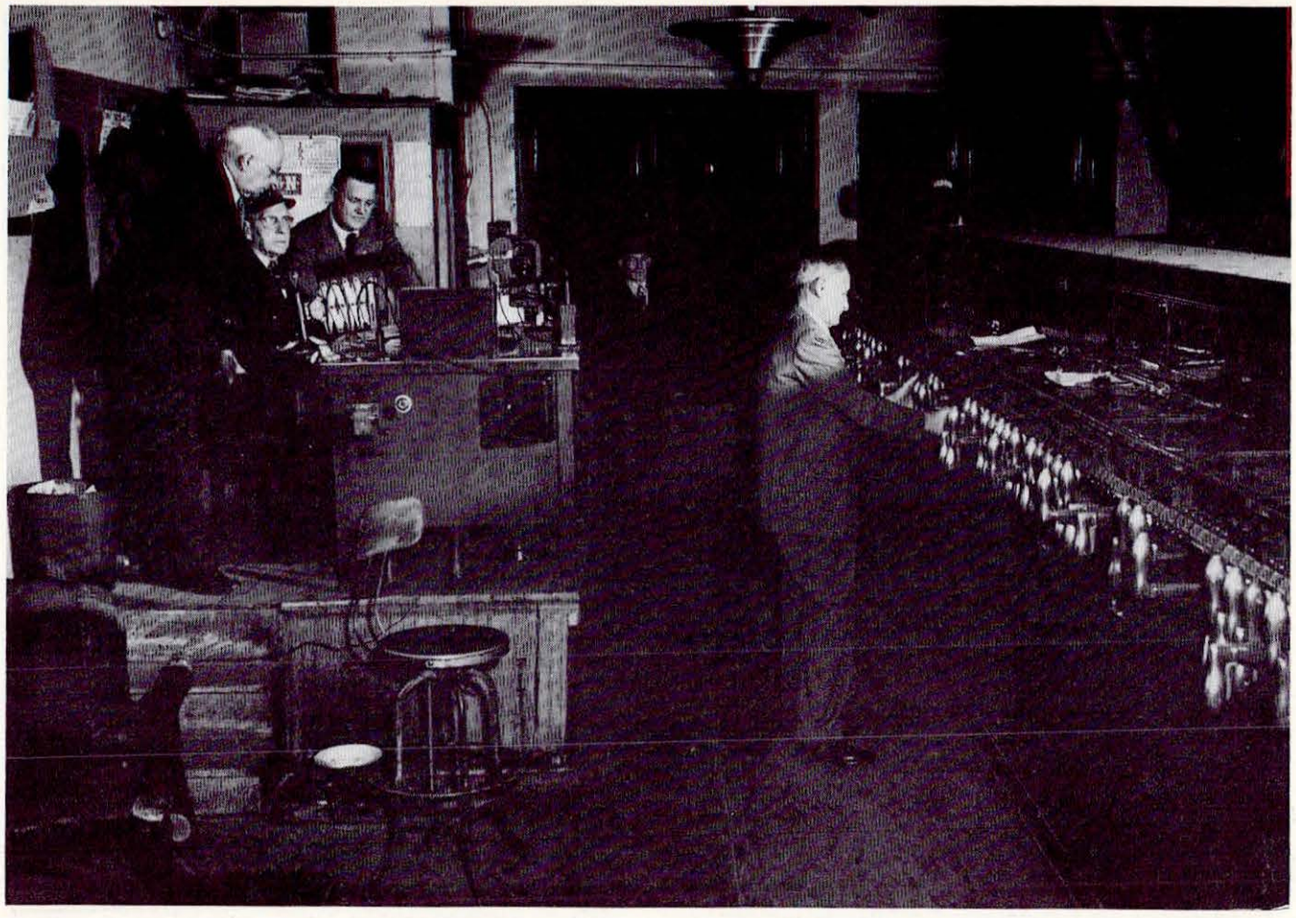
M.-u. equipment can be turned quickly, permitting in some cases a set of equipment to make two rush hour trips instead of one. It is cleaner and much more quiet than steam or diesel powered trains.

The second major category of electrification advantages comprises the savings that might be expected in direct operating expenses, such as lower maintenance costs, higher availability and greater reliability of equipment, because of the absence of power generating equipment on the cars.

An Illinois Central motor-trailer combination can accelerate to 28 m.p.h. in 20 seconds and to 50 m.p.h. in about one minute, permitting extremely fast local schedules compared to locomotive trains. Such schedules are not merely fast on paper, but are well maintained, the equipment turning in an on time performance of 96 per cent for 1951.

The fast acceleration of the m.-u. equipment plus the ability to reverse direction after completing a run offers another important advantage. These characteristics enable the I. C. to run approximately a train a minute into and out of Randolph street during the height of the rush hours over a three-track system.

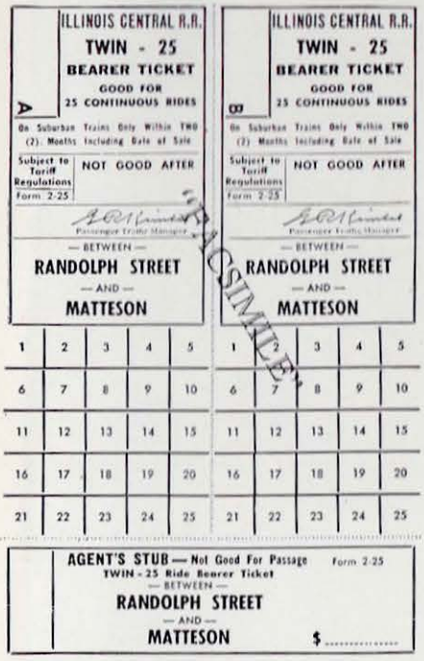
The ability to turn m.-u. equipment quickly is par-



The interlocking plant at Randolph street, the largest station from the standpoint of passenger volume.

Inspection shop at 16th street which is used for the multiple-unit suburban cars.

Passengers at downtown stations use I. C.-built pedestrian tunnels under heavy-traffic boulevard alongside tracks.



The "Twin-25" commutation ticket.

Interior of the 72-ft. 84-passenger car.

ticularly useful in commuter operations with the heavy concentration of traffic during two short periods per day. Less equipment is needed to handle a given traffic volume, reducing the initial investment in equipment and in facilities for storing excess equipment outside of the rush hours.

For some fifty trains per day less than ten minutes are allowed between arrival at destination and departure on the following trip, with intervals as low as six minutes between arrival in one direction and departure in the opposite direction. In many of these instances both the arriving and the departing train are in regularly scheduled revenue service.

One set of equipment, for example, arrives at Randolph street (the northern or in-town terminal) with passengers at 4:48 p.m., departing at 5:05 for South Chicago where it arrives at 5:36. Six minutes later, at 5:42, the same set of equipment leaves for Randolph street as a revenue train, arriving at 6:15 and departing as a regular revenue passenger train at 6:31 p.m.

Making up all trains in one or more groups of 2-car units permits splitting trains of four or more cars at junction points. The employment of self-propelled cars also permits operation of short non-rush hour trains at relatively low cost, at least by comparison with locomotive-powered trains. Altogether two-car trains comprise 34 per cent of all suburban trains run by the I. C., and they carry 9 per cent of the total number of passengers. Four-car trains make up 36.5 per cent of the total and carry 32 per cent of the passengers. Trains of six cars account for 22 per cent of the total runs and handle 37 per cent of the traffic. Only 7.5 per cent of the trains have 8 cars but they handle 22 per cent of all passengers carried. Over 70 per cent of all trains operated have four cars or less.

During 1951 the equipment made a little over 9.5 million car-miles and just under 2.15 million train-miles, giving an average of 4.4 cars per train. In making this mileage nearly 59 million kilowatt-hours of power were consumed, an average of 6.16 kw.-hr. per car-mile. In express service this figure was close to 4 kw.-hr. per car mile, while in local service it runs as high as eight or nine.

The total amount of the bill for power and electricity for other purposes in 1951 was $1,203,840, made up of a primary charge of $544,491 and a secondary charge of $658,349. The primary charge is based on the consumption for the three highest hours of each day averaged over a month. It is essentially a charge for having the facilities available. The secondary charge is a downward graduated scale at so much per kw-hr. for the first 5,000 kw.-hr., so much for the second 5,000, etc. Both of these charges vary with the price of coal under the I. C. contract with the public utility. For 1951 the price per kw.-hr. on the overall average came to a little

TYPES OF TICKETS SOLD IN 1949 WHICH FORMED THE BASIS FOR INTRODUCING THE "TWIN-25"

		No. of Tickets	Revenue
One-way—tickets	5 863 783		
cash fares	1 444 930	7,308,713	$1,507,589
Round trip		2,772,906	1,044,290
10 Rides		1,556,442	2,484,822
*12 Rides (Weekly)		161,043	315,320
25 Rides		196,214	814,661
*46 Rides (School)		768	5,833
*48 Rides (Monthly)		54,391	566,026
*54 Rides (Monthly)		411	3,328
*60 Rides (Monthly)		663	7,391
Totals		12,051,551	$6,749,260
Refunds (deduct)			10,275
			$6,738,985

*Restricted to use by purchaser

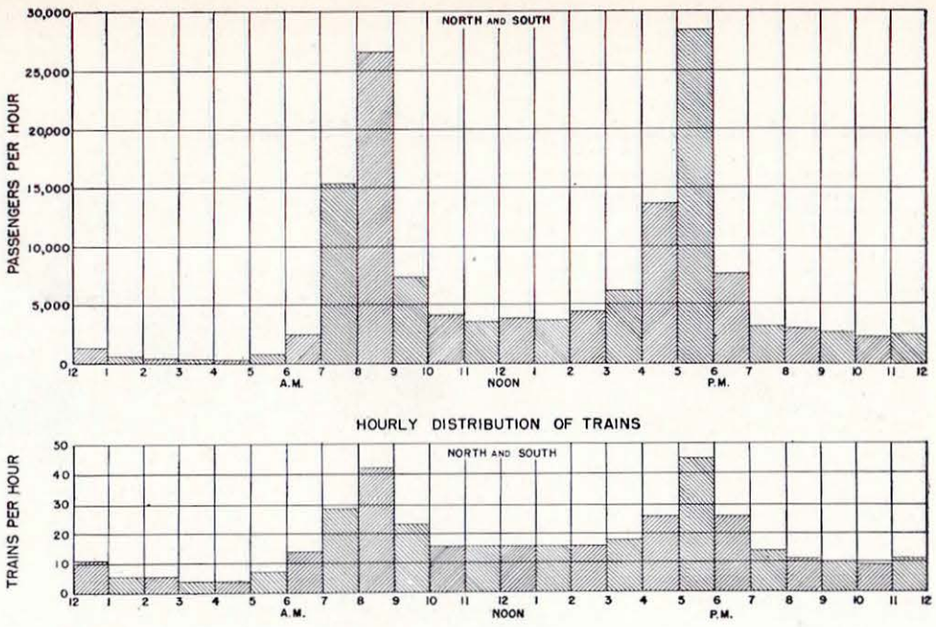
AVERAGE REVENUE PER PASSENGER MILE

Year	Revenue (Cents)	Index 1926-100	Year	Revenue (Cents)	Index 1926-100
1926	1.483	100.00	1939	1.211	81.66
1927	1.455	98.11	1940	1.208	81.46
1928	1.438	96.97	1941	1.210	81.59
1929	1.443	97.30	1942	1.278	86.18
1930	1.425	96.09	1943	1.363	91.91
1931	1.394	94.00	1944	1.372	92.52
1932	1.372	92.52	1945	1.376	92.78
1933	1.397	94.20	1946	1.351	91.10
1934	1.407	94.88	1947	1.371	92.45
1935	1.371	92.45	1948	1.623	109.44
1936	1.280	86.31	1949	1.753	118.21
1937	1.157	78.02	1950	1.755	118.34
1938	1.211	81.66	1951	1.818	122.59

over 2 cents, and the power cost per car mile to 12.6 cents.

To try to solve the number one problem of suburban operations—obtaining fare levels adequate to meet the cost of rendering the service—the Illinois Central prepares thorough and carefully documented presentations concerning operating and fixed costs and values of the properties.

In a case before the Illinois State Commission and the Interstate Commerce Commission, begun in February 1950, the preparation of testimony and its presentation at the hearings consumed some 65,000 man hours of time of railroad personnel.



Hourly distribution of trains and passengers on business days.

In this proceeding the I. C. presented its initial case through detailed exhibits with 13 witnesses in two days. Before the hearings were concluded, a total of 31 days were required for presenting all testimony, cross-examination and rebuttals, during which 81 exhibits and 3,000 pages of testimony were introduced exclusive of the 250-page final brief.

The cost to the railroad for presenting this case was estimated at $250,000. In addition, the road lost at least $1,800,000 in revenue because the increased fares later granted were not in effect during this period. These losses occurred despite the fact that the I. C. had an operating loss of $335,850 on its suburban operations for the preceding year, 1949. The loss was $473,985 for 1950 and almost $900,000 for 1951.

Railroad Understated Losses

During the course of the hearings four separate studies were made—one by the I. C., one by the I.C.C., a third by the Illinois Commerce Commission at the expense of the Illinois Central, and a fourth by the independent auditing firm of Price, Waterhouse & Co. The latter was engaged to make an impartial and unrestricted examination of I.C. suburban accounting methods and records to determine their accuracy for the public and the commissions.

The Price-Waterhouse report showed that the railroad had *understated* suburban operating losses by some $70,000 for the year 1949. The I.C. had reported an operating loss of only $265,551; the P.-W. report found that the operating loss was $335,850 and added $207,756 interest on funded debt against the suburban properties, making a total loss of $543,606 for 1949.

The increased rate schedule that resulted from the extended hearings was the usual compromise between what the railroad requested and the rates then in effect. No increase was granted in the minimum one-way or round-trip fares even though the I.C. demonstrated, as shown in one of the tables, that the short-haul passenger is not paying his way. The present one-way minimum fare is still 15 cents, rather than the 20 cents granted to Eastern railroads some of which operate in the Chicago territory. Strangely enough, I.C. fares are lower than those of buses, street cars and elevated trains of the Chicago Transit Authority for distances up to six miles.

Coincident with the increase in fares, the I.C.C. prescribed several changes in the types of tickets to be sold. The present 12-ride individual weekly ticket and the 48-, 54- and 60-ride individual monthly tickets were replaced with tickets of four types: (1) a "Twin-25" 50-ride ticket, (2) an unrestricted individual monthly ticket, (3) a restricted individual monthly ticket and (4) an unrestricted individual weekly ticket.

The "Twin-25" is a new type of 50-ride ticket designed to meet the transportation needs of the entire family at reduced rates. It is actually two attached 25-ride tickets which may be detached and each part used separately by any person. The husband may use one portion for traveling to and from work while the wife and children use the other portion for shopping and visiting. Friends and relatives may also be carried on the "Twin-25" ticket.

The advantages to patrons of the "Twin-25" over other tickets are: they may be separated into two parts and used independently by anyone; they may be used to carry any number of riders up to the limit of unused rides on the ticket; they are not restricted as to use on Saturdays, Sundays and holidays as is the restricted monthly ticket; and they are good for two months from date of sale.

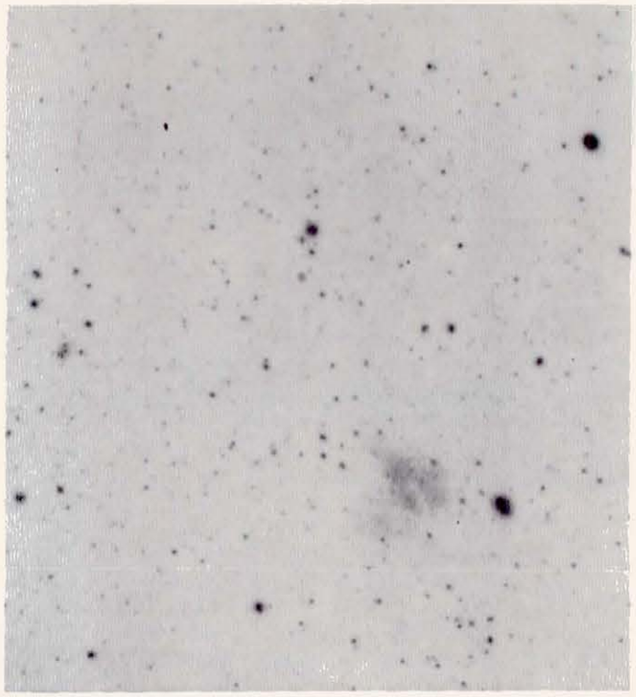
The unrestricted individual monthly ticket may be used any day during the calendar month for which it is issued. It is a non-transferable ticket good only for the use of the person for whom it is issued and must be signed by that person. Each ticket is stamped "man" or "woman" and it will be honored for any number of rides by the person whose signature appears on it during the calendar month of issue.

The restricted individual monthly ticket is identical to the unrestricted type except that it will not be honored for transportation on Saturdays, Sundays and specified holidays. It also will be stamped "man" or "woman" and must be signed.

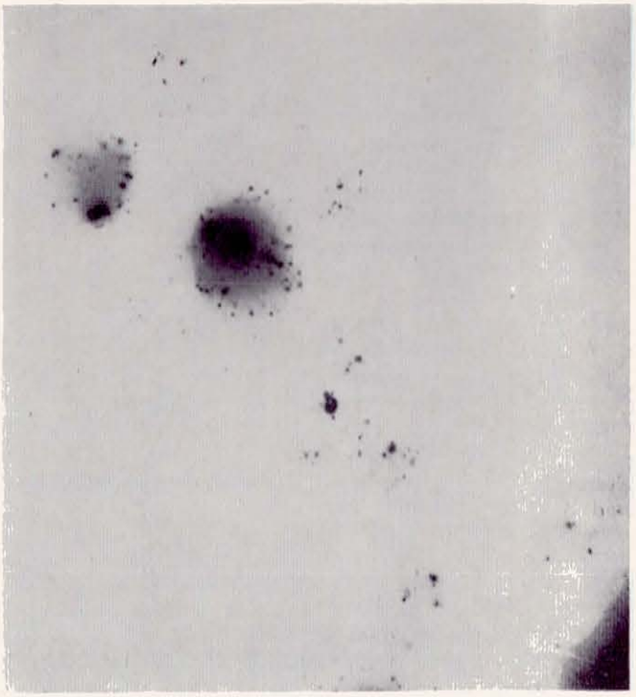
A new unrestricted individual weekly ticket replaced the present individual 12-ride weekly ticket. Like the restricted and unrestricted monthly tickets, this new weekly ticket is good only for the person for whom it is issued. It will be honored for any number of rides on any day, from Monday through the following Sunday, during the week for which it is issued.

The 10 and 25-ride annual tickets were continued without change in form or style.

Snapshots of diesel lubricant—magnified 45,000 times



Typical satisfactory dispersion of matter in oil after five weeks' service.



Typical poor dispersancy pattern. This oil resulted in a high rate of engine wear.

Electron microscope helps bring

Cheaper Fuel and Longer Life for Diesels

D. & R.G.W. uses new research tool to find:

- ***Fuel oil from cheaper sources***
- ***Optimum lubricant and additive combinations***
- ***Best tests for deliveries of both***

If you magnify a specimen drop of additive type oil to 45,000 times normal size, and take a photograph of that magnification, you will get a print which looks like a cross between a picture of the heavenly constellations on a clear, cold night and a dirty sheet dotted with ink-stains. To the untrained such a photograph means nothing. But, to a technician in the Denver & Rio Grande Western's research laboratory, these spots and clusters indicate whether oil has good "dispersion" or not. And good dispersion, it is becoming clear, is a sure sign that oil will deal kindly with the insides of diesel locomotives; that repair costs and service failures will be kept to a minimum; and that oil from cheaper sources can be used with impunity.

Photographic specimens "blown up" 45,000 times actual size is possible only with an instrument called the electron microscope. Whereas the conventional optical microscope operates with magnifying lens, reflector and light, the electron microscope projects streams of electrons first onto the image to be studied, thence onto a photographic plate. With the older type instrument, the technician viewed the subject with his naked eye. Photographing this image was difficult. The top possible magnification was about 2,000 times actual size. In contrast, the electron microscope produces a photograph directly, and viewing by the naked eye is not necessary, or even possible.

The electron microscope, until recently, was the exclusive possession of a few large and well-endowed research organizations. Now ownership of a cheaper, smaller and simpler instrument by a wide range of industrial laboratories, large or small, is made possible

by production of a so-called "permanent magnet" type by the R.C.A. Victor Division of the Radio Corporation of America.

Costing about $9,000, one of these new-type electron microscopes was ordered in 1951 by the D. & R.G.W. (reported in *Railway Age*, January 21, 1952, page 19), and delivered in March for service in the road's research laboratory in Denver. It is believed to be the first such instrument to go into railroad service.

The microscope employed on the Rio Grande is only 30 inches high and is described as a table model. It employs permanent magnet lenses, requiring no stabilization circuits or controls. It will provide useful magnifications up to 50,000 "diameters," made possible through photographic enlargement of the image, with direct magnification in the instrument ranging up to 6,000 "diameters." It is 20 times as powerful as the best optical microscope and possesses a depth of focus (i.e., range of sharpness) 150 times as great.

Of special significance is the fact that the lower end of the magnification range of the new instrument overlaps that of the conventional light, or optical microscope, permitting the researcher to progress by stages from the known to the unknown. He may thus relate the particles and structural details he observes to those made familiar to him by the optical microscope, before advancing to higher magnifications which disclose a vast amount of new detail that he might otherwise be unable to identify.

Equally important is the simplicity of operation achieved in the new design, which makes the instrument safe for operation in the hands of a high school student or unskilled laboratory personnel. With no more than an hour of instruction, an operator generally familiar with the optical microscope should be able to insert specimens and produce well-focused pictures.

Wide Range of Use

The usefulness of the electron microscope, according to the railroad, is almost limitless. The most immediate needs which it will be used to serve are:

(1) To determine new blends of fuels and dispersants which will enable the railroad to obtain a cheaper fuel oil for diesel locomotimes—without sacrifice of operating results or increase of operating expense.

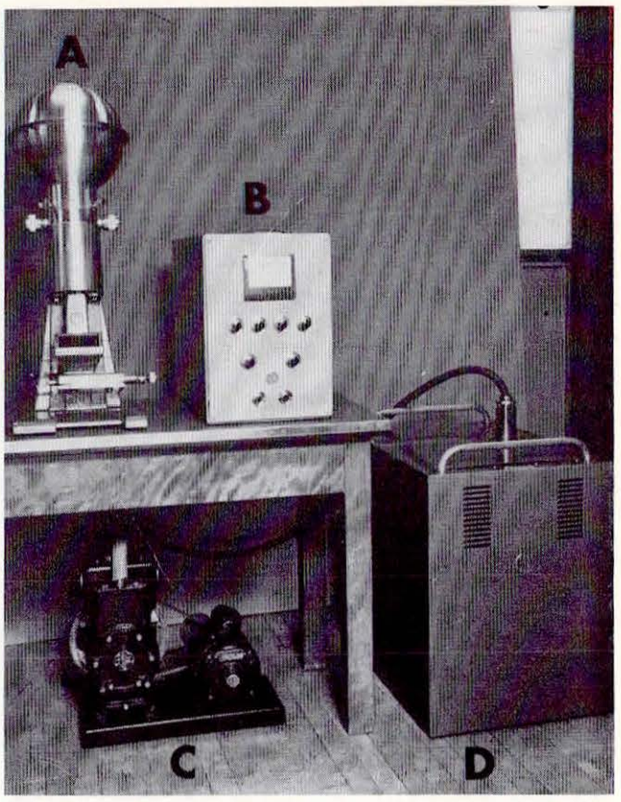
(2) To determine the best lubricating oils and additive combinations which will also be long-lived and reduce engine wear to a minimum.

(3) To check each shipment of lubricating oil received and to maintain the same dispersancy pattern of additive in new oils—to prevent serious operating difficulties.

(4) In cooperation with all oil companies, to test deliveries of both fuel and lubricating oils.

Electronic analysis is a fairly new tool in industrial research. Up to now it has been used largely by the oil companies in basic research on lubricating oils. During a series of visits to research facilities of practically every major oil company in the country, Ray McBrian, engineer of standards and research of the Rio Grande, observed the electron microscope at work and came to realize its possibilities of even wider usefulness to the railroad.

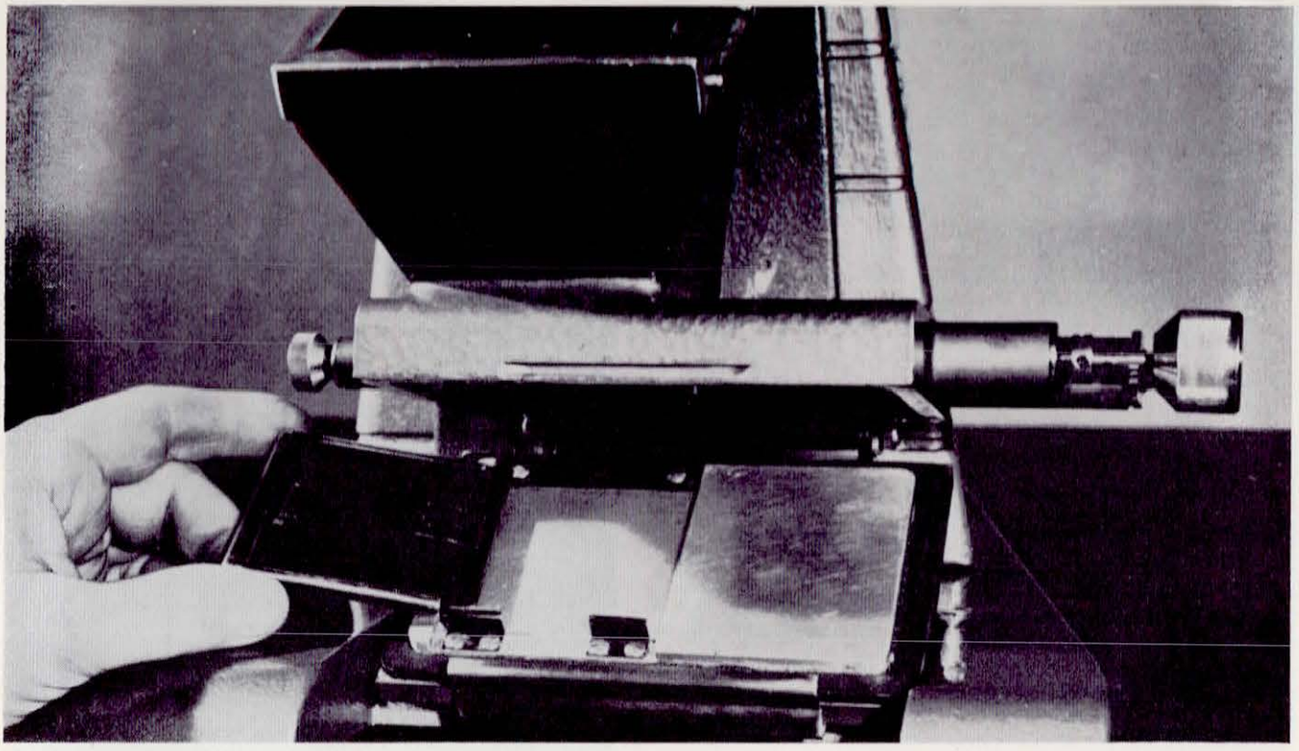
At about this time, the D. & R.G.W. was interested in testing fuel oil for diesels from shale deposits, which abound in Colorado. Oil from shale is exceedingly unstable; its components may break down within a half hour after testing. The railroad, therefore, arranged for the Union Oil Company of California to use its electron microscope in problems prepared by the U. S. Bureau



The Rio Grande's new $9,000 electron microscope looks like this, with its associated units.

A—Microscope (knobs control specimen movement and adjust electron beam).
B—Control unit (on-off switches; control of beam emission; adjustment for coarse or fine focus).
C—Vacuum pump.
D—High voltage power supply (provides 50,000-volt "accelerating potential").

R.C.A.'s new "permanent magnet electron microscope" is a 30-in. table model. The average laboratory technician can learn to take good pictures in an hour's time.



Specimen ready for insertion in microscope. The machine projects stream of electrons onto sample to be studied, thence onto photographic plate.

of Mines, at Rifle, Colo., seeking a dispersant which would stabilize fuel oil from shale. Result: the factor of stability was controlled. Attainment of less expensive production methods is now the major problem in utilizing shale for oil—not conditioning the product for locomotive use.

A Cheaper Fuel Oil

Now that the railroad owns an electron microscope, it has a means at hand to (1) determine the kind of fuel oil it wants for its locomotives and (2) test what it receives to be sure it meets requirements.

The Rio Grande observes that diesel fuel oil is more and more becoming akin to gasoline in source and in price. It believes the railroads must find a product of residual oils which will power diesel locomotives as satisfactorily as the grades of fuel oils now considered necessary. It points out that attainment of a specially designed fuel costing one half cent less a gallon than present supplies would save the Rio Grande alone up to $150,000 a year.

The principal job of the electron microscope in the study of fuels will be, by photographing dispersion of solids, to determine the types of fuel oil and classes of addition agents which will prepare it to burn in existing engines—with standard injection systems—without operating difficulties or high rates of wear. Through previously existing tools, the railroads, oil companies and locomotive builders already know a great deal about the qualities of fuel oils. The electron microscope, says the Rio Grande, will, by correlation with existing tests and service performance, open up a whole new world of physical and chemical changes not heretofore knowable or detectable.

One of the most necessary requirements for a railroad in a fuel oil, says Mr. McBrian, is one which is as free as possible of hydrocarbon suspensions. When instability of the particles causes these suspensions—or clusters of matter—the diesel engine suffers loss of power. Deposits of such matter clog injectors, screens, filters and many other mechanisms.

"The frontier of knowledge about what constitute satisfactory oils is being pushed forward bit by bit as more correlations are discovered and proved. I may now say, categorically, that oils which show poor dispersion of components—i.e. instability—are not satisfactory for diesel locomotive use."

For Better Lubrication

A second big field for the electron microscope on the Rio Grande is in testing diesel lubricating oils. Unsatisfactory quality of the latter may arise from any or all of three distinct causes: (1) Unstable character of the oil itself; (2) poor distribution of additive; or (3) absorption of foreign matter—from the engine or from the air—in service.

"When poor dispersion is determined by microscopic analysis, no further tests need be made, according to our experience," says Mr. McBrian. Sure detection of all of these unsatisfactory conditions is made possible by the electron microscope.

Credit for first use of the electron microscope for examining lubricants goes to the Union Oil Company. More than a year ago, Mr. McBrian secured, through J. L. Broughton, the assistance of this company's research department in studying some 100 samples of the principal oils used by roads throughout the country. Of these, 30 per cent were new and unused oils, and 70 per cent were crankcase oils with varying service mileages. Of both new and old oils, half were in the medium, and half in the high, viscosity index range.

In addition to microscopic study, these oil samples

were analyzed quantitatively for presence of metal resulting from engine wear, using the emission spectograph; some samples were also given a special wear test developed by the Rio Grande. These additional tests confirmed, in general, the findings of the electron microscope: *oils showing high metal pick-up in service also showed poor distribution of particles under the microscope.*

Checked in Service

Finally, since microscopic analysis had never before been used to determine the *service* characteristics of lubricating oils, the Rio Grande—in cooperation with laboratories of the Baltimore & Ohio and the Gulf, Mobile & Ohio—tested samples of oil which had been in actual use, along with the detailed service records of the diesel units involved, which were accumulated and checked. In addition, results of use of various oils and additives in individual engine tests in the plants of the locomotive builders were studied. All these steps were taken with a view to finding all possible threads of correlation between the appearance of structure patterns in the microscopic photographs and the behavior of the oils in actual service.

As a result, the Rio Grande came to some tentative conclusions, the more significant of which are:

(1) Each additive type oil has a definite structure pattern, which is influenced by both the composition of the additive and the solvency of the base stock itself.

(2) Additive type oils are not true solutions.

(3) Dirt and carbon particles accumulated by the oil assume the same arrangement pattern as obtains in the original structure of the additive.

(4) Those oils which give the best service results are those which show the best distribution, or dispersion, of additive.

(5) Differences of groupings of particles appear to influence directly the action of oil in engine operation with regard to deposit accumulation, rates of wear, condition of ring breakage, additive depletion, etc.

(6) Oils cannot be mixed successfully unless the dispersant type additives are compatible.

Mr. McBrian advances the opinion that a high viscosity-index oil—say 85 or 87—with a barium, calcium, or zinc base additive—due to its detergent qualities may secure in service a high degree of cleanliness in the engine chambers. Nevertheless large groupings of additive, plus dirt and carbon, might, for example, be suspended behind the piston rings. No permanent deposit would necessarily result, yet the rings would be forced in an abnormal position, inviting breakdown of edges and formation of bald spots and other types of wear. (This does not mean that a high v.i. oil cannot be made satisfactory; it does mean that it is as necessary to obtain a good dispersancy pattern in a high v.i. oil as in a medium one.)

Since this particular study was made, many of the laboratories of other major oil companies have either secured electron microscopes or arranged to use equipment used by institutions. Since receipt of its own equipment in March the D. & R.G.W. has been preparing to make its own analyses.

Throughout, the findings of the original 100-sample tests have been confirmed, in the main. Studies to date have been made at both 6,750 and at 45,000 times magnification. It has been determined that the latter is the range at which differences in dispersion are sufficiently apparent to correlate patterns of matter in the oil with actual service results out on the railroad.

Field for Future

A writer in the Oil & Gas Journal (September 7, 1950), in reviewing the work of two researchers, stated: "The use of additives is hampered by the different behavior in oils of different origins. The list of additive types available for compounding with lubricating oils, as well as the characteristics which would be changed by these additives, reveals that there are 51 characteristics affected by additives. It would seem, therefore, that scarcely any field of petroleum chemistry related to lubricating oils would hold more opportunities for research development than the field of petroleum lubricating oils compounded with additive agents."

In addition to testing oils, the Rio Grande looks forward to an ever-widening field of use for its electron microscope. To mention but a few of the possibilities, it envisages use of the instrument in basic research on the reasons why metals have peculiar properties which result in service failures, and how metals age under varying ranges of temperature.

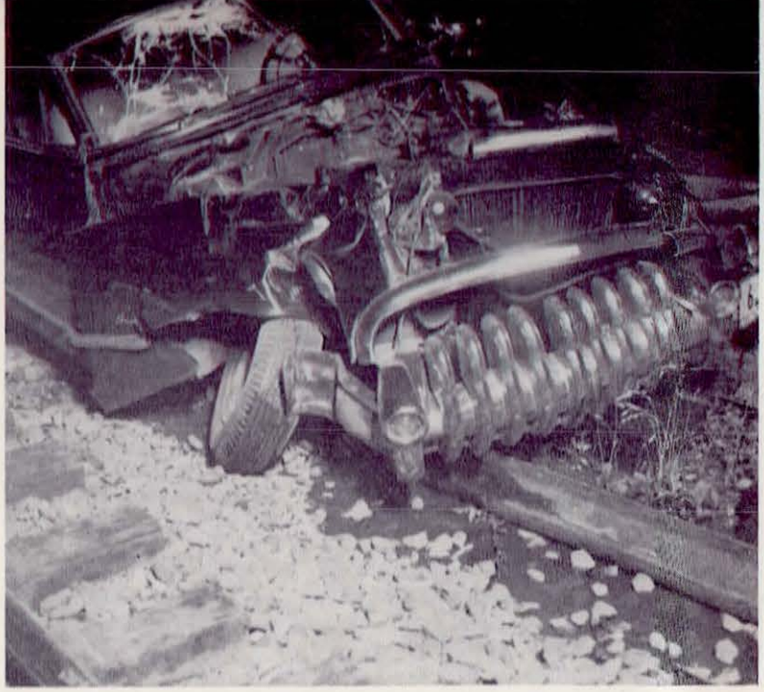
BENCH MARKS AND YARDSTICKS—8

"The old system of measuring a man's adequacy by 'paper performance' is fast disappearing on our railroad"—so reports a division superintendent of a large mid-continent railroad. "We are getting away from departmental operation, and all departments are more cooperative than they were at one time. The elimination of 'red tape' in all departments has also been helpful. Our suggestion system and safety program have also made their contributions.

"The best yardstick to use with supervisors is simple and could be summarized as *results obtained.* In order to measure the efficiency of a supervisor, one must consider: first, character; second, ability to get along with people (human relations); third, safety-mindedness; fourth, loyalty; and fifth, technical qualifications. If a supervisor meets this standard he is capable of ranking high in efficiency. In measuring that efficiency we are guided by, first, the morale (loyalty) of his organization or department; second, safety performance and the welfare of the employees under his jurisdiction; third, production obtained; and fourth, individual interest by his employees in matters concerning the company."

The criterion of what a supervisor's subordinates think of him—as a measure of the supervisor's adequacy—is an interesting addition to the correspondence which this series of discussions has provoked. It's a dead sure thing that such a measure could not be used alongside any purely 'paper performance' index, because a fellow forced to railroad "for the books" couldn't possibly do the kind of job that would arouse the admiration of his subordinates—which is not to say that the figures aren't vitally important, if used with discretion.

This is what happened when an automobile struck the forty-ninth car of a 96-car freight train at Geneva, N. Y. Thirty-two per cent of the accidents in 1950 at grade crossings were caused by motor vehicles running into trains.



The remains of an automobile after it had struck the side of a train at Ridgeland, N. Y. Mr. Voorhees advocates strengthening laws where necessary to make careless driving at grade crossings a misdemeanor.

Changing Conditions Give New Slant to Grade-Crossing Problem

Revolutionary changes in transportation in recent years have caused major responsibility for accidents at railway-highway intersections—and for the cost of remedial measures—to be shifted to highway users

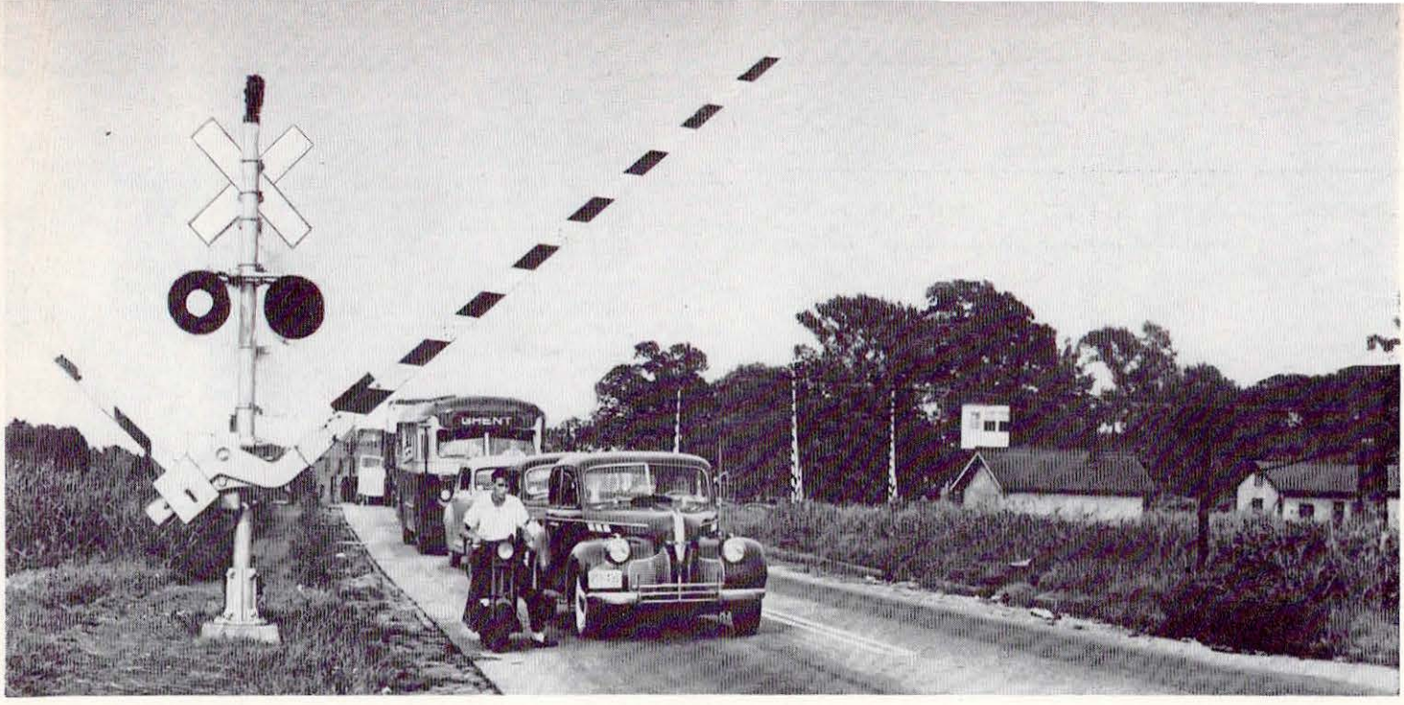
By BOYNTON S. VOORHEES
Vice-President
New York Central System

This article is based on a hitherto unpublished report prepared by Mr. Voorhees in his capacity as chairman of the Committee on Grade Crossing Elimination of the Association of American Railroads. As an exposition of the important changes that have occurred in those aspects of the grade crossing problem bearing on the responsibilities of the railroads relative to accidents at such locations it is interesting and instructive. More important, it provides information that should prove useful to those who must carry on negotiations with public authorities relative to the protection or elimination of railroad-highway grade crossings.—Editor.

During 1950 collisions at railway-highway crossings between motor vehicles and trains resulted in 3,696 accidents, causing 1,410 deaths and 4,226 reportable injuries. This considerable number of such accidents, an increase as compared with 1949, occurred in spite of the large-scale grade-crossing elimination and protection programs that have been carried out over a period of years. The continuing toll being taken by accidents at grade crossings naturally raises important and fundamental questions regarding the responsibility for them and the manner in which the cost of remedial measures should be allocated between the railroads on the one hand and public bodies on the other.

One fact to consider is that both automobile registrations and accidents have increased since the war, while at the same time there has been an appreciable decrease in train-miles, indicating that accidents at grade crossings are directly related to the volume of highway traffic moving over them. Another is that over 32 per cent of the accidents at grade crossings in 1950 were caused by motor vehicles running into the sides of trains. Furthermore, along with the development of high-speed motor vehicles, the nationwide system of highways has been expanded and improved, while railroad mileage has decreased.

More specifically the mileage of improved or surfaced highways in the United States increased approximately 270 per cent in the 25-year period from 1921 to 1946, while during the same period the total railway mileage in the country decreased about 10 per cent. Motor-



Grade-crossing elimination projects are being carried out today largely for the purpose of precluding delays to highway traffic, with consideration of safety to motorists or damage to rail equipment relegated to a minor position.

vehicle registrations increased about 230 per cent during this period, while the total number of equipment units in railroad service, that is, locomotives, and passenger and freight cars, decreased about 24 per cent. Surveys in 1940 and 1941 of crossings in various states showed a range from 48 to 1,820 vehicles using the crossings for each train, and that in a number of instances the increases in the number of highway vehicles per train at the crossings during the last 30 to 40 years have amounted to as much as 3,000 per cent.

Thus, not only has the burden of responsibility for the hazard at highway-railroad grade crossings shifted to the highway users but the railroads now require protection from the dangers and delays incident to motor transportation. Not infrequently collisions between motor vehicles and trains at grade crossings cause derailments of trains, both passenger and freight, resulting in death and injury to railroad employees and passengers.

The increase in accidents at grade crossings, train delays and train derailments is occurring in spite of efforts of railroads and public organizations to promote safety, and is no doubt attributable to the revolutionary changes in transportation in recent years brought about by the widespread introduction of motor vehicles, which in turn has changed the character, the construction and the use of highways both from the standpoint of greater volume and greater speed of highway traffic.

Motorists Must Blame Themselves

Studies of thousands of automobile accidents over a period of many years show that the driver of the motor vehicle must blame himself for the greater part of these tragic and costly accidents. This is borne out by the fact that the accidents at highway-railroad grade crossings are a relatively small percentage of the whole highway accident problem, as is shown in the accompanying table, based on statistics published by the Travelers Insurance Companies, Hartford, Conn., listing the types of highway accidents resulting in deaths and injuries in 1951.

Whatever steps are necessary should be taken to strengthen the laws now covering the issuance of licenses to drive automobiles, and also to amend the laws where necessary to make careless driving at grade crossings a misdemeanor, so that successful prosecutions can be made where violations occur. It would seem advisable to give further consideration to securing legislation that would require motorists to slow down or stop at grade crossings. Laws were enacted in some of the states to require motorists to stop at all grade crossings but were not satisfactorily enforced.

In the various National Street and Highway Safety Conferences held in Washington during the past several years—at which every agency that would be involved in this problem was represented—the general formula adopted was to require the motorist to slow up at the advance warning sign—generally 300 to 500 ft. from the crossing—and have his car under maximum control from that point until he passes over the crossing.

It is becoming more and more apparent that the elimination of railroad-highway grade crossings is being carried out more for the purpose of eliminating the delays to highway traffic than because of the accident hazard. The fact that elimination projects are being activated primarily for the convenience of the motorist, rather than safety, is demonstrated by the accident record with respect to grade-crossing eliminations ordered by the New York State Public Service Commission in 1941 or on its program for that year. The record for the most part covers a 10-year period.

The total number of grade crossings listed was	396
The number of these at which there were no accidents was	147
The number at which there was but one accident was	77
The number at which there was less than 5 accidents was	338

This left only 58 crossings at which there were 5 or more accidents.

Cost of Accident Claims

In connection with the recognition of the shift of responsibility to the highway user and the reduction in the railroad proportion of the cost of eliminating grade crossings, a recent study in the state of New York covering elimination work completed since 1938 indicates that the average annual cost to the railroads on

HIGHWAY ACCIDENTS IN 1951, CLASSIFIED BY TYPES

	Persons Killed	*Per Cent*	*Persons Injured*	*Per Cent*
Collision with:				
Pedestrian	9,470	25.5	290,660	14.8
Automobile	14,600	39.4	1,261,960	64.3
Horse-drawn vehicle	40	.1	1,960	.1
Railroad train	1,530	4.1	7,840	.4
Street car	40	.1	3,920	.2
Other vehicle	160	.4	7,840	.4
Fixed object	3,230	8.7	123,640	6.3
Bicycle	480	1.3	43,000	2.2
Non-collision	7,510	20.3	215,900	11.0
Miscellaneous	40	.1	5,880	.3
Totals	37,100	100.0	1,962,600	100.0

a 10-year basis for the settlement of accident claims prior to elimination was $164 per crossing.

This tendency is further reflected by the fact that in New York state the earlier statutes empowered public authorities to designate the crossings required by the "public safety" to be eliminated, whereas, subsequently, the law was changed to permit the public authorities to order the separation of grades merely on the grounds of "public welfare." Consequently, eliminations are being largely motivated by the desire of municipal or other public authorities for public improvements and the expediting of fast-moving highway traffic. The safety question has been relegated to a minor position.

Formula for Railroad Participation

Authorities in a number of states have not taken advantage of the full percentage of the total appropriation which may be devoted to highway-railroad grade crossing elimination and protection under the Federal-Aid Highway Act of 1944. This act fixes the division of costs on the basis of benefits but not in excess of 10 per cent to the railroad. In view of the many argumentative questions in determining benefits, subsequent negotiations, involving the Public Roads Administration, the Executive Committee of the American Association of State Highway Officials and the Committee on Grade Crossing Elimination of the Association of American Railroads, resulted in the issuance of P.R.A. General Administrative Memorandum No. 325 which carried the following stipulations:

Hereafter the required railway contribution with respect to a particular railway-highway project shall conform to the following classification:

(1) **Grade Crossing Eliminations**—This group shall include all projects for the elimination of hazards at existing intersections of railways and highways at grade, whether accomplished by overhead or underpass structures or by relocation of the highway or the railroad to avoid crossing at grade. When the principal crossing or crossings at grade which such structure or relocation of the highway or the railroad is designed to eliminate will be closed after completion of the project, such project shall be deemed to be of benefit to the railroad and the railroad shall contribute 10 per cent of the cost of the project. If, however, such principal crossing or crossings are not closed, even though other nearby crossings at grade on minor roads or streets may be closed by reason of the project, such project shall not be deemed to be of cognizable benefiit to the railroad and no contribution from the railroad to the cost thereof shall be required. In such cases the project shall be considered a federal-aid highway project and shall be financed on the regular pro rata of state and federal funds.

(2) **Reconstruction of Existing Railway Highway Grade Separation Structures**—This group shall include all projects for the reconstruction, including replacement, widening, or strengthening of existing structures that separate railways and highways at grade, whether on the same or different locations, and shall be considered as not resulting in ascertainable benefits to the railroad and consequently no contribution to the cost of such a project by the railroad shall be required.

This section, however, is not intended and shall not be construed to alter or abrogate the provisions of a specific contract entered into as a part of the original construction agreement with the state or its subdivisions by which the railroad agreed to participate in future reconstruction.

(3) **Grade Crossing Protection**—This group shall include all projects for protection of existing crossings of highways and railways at grade by automatic signal devices and shall be considered as resulting in benefits to the railroad and 10 per cent of the total cost thereof shall be contributed by the railroad, whether the signal device is wholly new or modernizes or improves an existing signal device.

(4) **Existing Railroad Crossed by New Highway or Existing Highway Crossed by New Railroad**—Where a new street or highway is established which is not essentially a relocation of an existing street or highway and intersects an existing railroad at grade, the construction of a separation structure or the installation of a signal device at such crossing will not be considered as a benefit to the railroad and no contribution by the railroad will be required. Where an existing street or highway is intersected by a new line of railroad the construction of a separation structure or the installation of a signal device at such intersection shall be considered as for the benefit of the railroad and shall not be eligible for federal aid.

Maintenance—Future maintenance of all grade separation structures and protective devices shall be determined by negotiation between the state highway department and the railway and shall be set forth in the agreement between the state highway department and the railway.

This formula was accepted by the A.A.R. and by the Executive Committee of the American Association of State Highway Officials, and presents a realistic approach which might well serve as a fundamental basis for future federal and state laws.

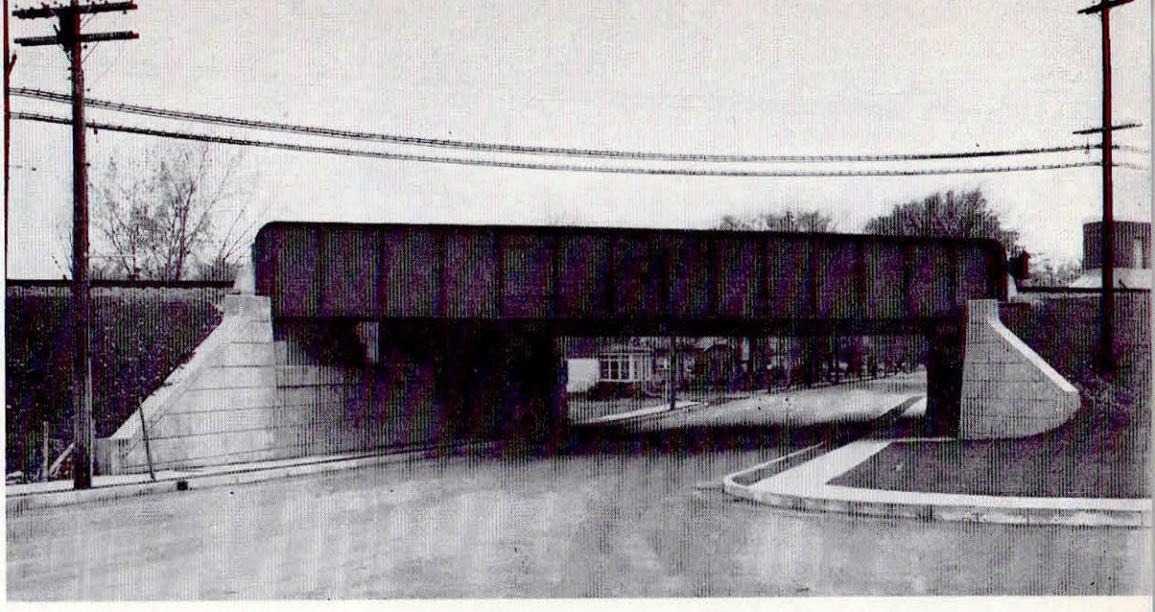
Prior to the development of motor vehicles, the railroads furnished the chief method of fast and long-distance transportation. The highways mainly served local slow-speed traffic and the railroad, with its high speeds, was then considered the main cause of accidents at grade crossings. The separation of dangerous grade crossings was considered to be necessary to give protection to highway traffic. The apportionment of costs of these grade separations was necessarily arbitrary as there had been little experience up to that time upon which to determine the benefits to be derived either by the railroads or the public.

The benefits and costs that accrue to the railroads from the separation of grades can now, to a very considerable degree, be measured. The railroads of New York, Ohio, Michigan, Indiana, Illinois and West Virginia have analyzed the costs of their elimination work subsequent to 1926, the purpose being to ascertain the difference between the annual cost of maintenance, protection and accidents at these crossings before elimination and the subsequent annual cost of maintenance and renewal of the structures erected for grade separation. The results of these studies, indicating the fair percentages to be borne by the railroads on a benefit basis, are as follows:

State	*Saving to Railroads*
New York	nil (deficit)
Michigan	3.74 per cent
Ohio	9.58 " "
Indiana	4.00 " "
West Virginia	nil (deficit)
Illinois	2.32 per cent

Changes in State Laws

It is apparent, therefore, that the railroads' justifiable obligation in the matter of costs of grade-separation projects is much less than they had been forced to assume, generally 50 per cent, prior to 1939. In that year New York, Michigan, Ohio and Indiana enacted legis-



Underpass on the New York Central at Herkimer, N. Y. New York law requires railroads to participate in the cost of grade separation projects only to the extent of a maximum of 15 per cent, the amount being determined on the basis of the net benefits accruing to the railroad.

lation reducing the railroads' proportion and in 1947 New Jersey and West Virginia followed suit. In 1949, New Mexico reduced the proportion of railroad participation, and also in that year Kentucky revised its statutes to permit the city of Louisville to contract with the railroads to eliminate a grade crossing on the basis of a flat 15 per cent participation, but the railroads were to assume the entire cost of railroad changes. Outside Louisville, the railroad pays one-half the cost of work within the railroad right of way extended across the highway, plus cost of plans, specifications and bids, and the state pays the remaining one-half of the work located within the railroad right of way plus the entire cost of the work beyond the railroad right of way.

Also in 1949 the city of New Orleans, La., authorized a $15,000,000 bond issue for the construction of a passenger terminal and the elimination of grade crossings, the cost of the elimination work to be borne 15 per cent by the railroads and 85 per cent by the state. Outside New Orleans the grade crossing law of Louisiana applies to municipalities only and the cost of construction and maintenance is equally divided between the railroad and the municipality. Outside of municipalities, the division of cost is subject to negotiation between the State Highway Commission and the railroad involved.

These various new laws provide for the railroads' proportion of the costs to be as follows:

New York—Net benefit basis, maximum of 15 per cent.
Michigan—Net benefit basis, maximum of 15 per cent.
Ohio—Flat 15 per cent.
Indiana—Extended the 20 per cent railroad proportion to city and town eliminations.
*New Jersey—Flat 15 per cent.
New Mexico—Not to exceed 10 per cent.
Louisiana—Flat 15 per cent in the city of New Orleans.
Kentucky—Flat 15 per cent in the city of Louisville.
West Virginia—Flat 10 per cent.

*The railroads do not participate in the cost of highway paving, drainage, sidewalks, curbing, gutter, fencing, lighting, etc.

It is thus apparent that some progress is being made in getting the states to adopt a realistic approach in apportioning the cost of grade-separation projects, but it is equally apparent that there are still many states where the thinking, as reflected in existing statutes, has lagged far behind the realities of the situation. It is to be hoped that in considering this subject in the future, the individual states will see the equity in and adopt the formula for railroad participation developed by the Bureau of Public Roads and the A.A.S.H.O. for carrying out federal elimination, protection and bridge-reconstruction projects, namely, railroad participation of 10 per cent in the case of elimination and protection projects and no participation in the cost of bridge-reconstruction projects.

The fixed method of apportionment on the 10 per cent basis was adopted after exhaustive study and negotiations, not only from the standpoint of equity, but also to avoid the controversies which so often arise in the determination of benefits in each individual case, involving unnecessary delay in prolonged negotiations in an effort to arrive at a basis of agreement. It is believed if such a procedure were to be adopted by the states, it would tend to materially expedite the undertaking of elimination and protection projects.

Letter from a Reader . . .

Why Travel Agents Favor Railroads' Competitors

ROCHESTER, MINN.

TO THE EDITOR:

We have many, many calls daily for railroad information. But, because of the complacency of so many railroad agents, we are unable to procure correct data. As a result we are selling air, lots of air, and more air travel every day. The North American railroads, as a whole, seem to be playing a game of "hard-to-get." It seems that, as time goes on, they become more and more difficult to do business with.

When they wake up to the fact that travel agents daily are diverting first class passengers to another mode of travel, they will realize what we've done. Maybe too late. If you don't believe me, deduct the military travel from the passenger revenue and see what the score is.

May we suggest that you write about this need and urge the American railroads to recognize the vast number of travel agents who are ready and willing to help save the railroads from passenger traffic oblivion.

For a small commission we're ready to help.

RAYMOND C. MOORE,
Manager, World Travel Bureau

[Our correspondent, who considers himself a "small travel agent," is a regular reader of *Railway Age's* annual "Passenger Traffic Issue," which, he says, "is read and reread until well worn." He tells us: "It is a pleasure to find someone connected with this great industry interested in the small travel agent." Comments on Mr. Moore's letter are invited. —*Editor*]

W. Arthur Grotz

Fabian Bachrach

Eugene S. Williams

W. Arthur Grotz Elected President of Western Maryland

W. Arthur Grotz, vice-president in charge of the transportation department of the Chase National Bank of New York, was elected president of the Western Maryland, effective May 1, by the road's board of directors on April 17. Mr. Grotz will succeed Eugene S. Williams, who will continue as chairman of the board. Mr. Williams has been president and chairman since 1948.

The new president of the Western Maryland was born in New York July 1, 1904. He graduated from New York University with a bachelor of commercial science degree in 1929. In 1930, after varied experience in New York's financial community, he was employed by the Chase National Bank as a railroad analyst. From 1936 to 1941 he was an assistant cashier for the bank and in the latter year he became a second vice-president. Mr. Grotz retained this position until 1945, when he was elected vice-president in charge of the transportation department.

For the past several years Mr. Grotz has been a member of the Western Maryland's board of directors and also of the executive committee. In addition, he has served as chairman of the road's stock committee, representing the Chase National Bank, which controls a large block of W.M. stock as voting trustee. The W.M. securities for which the bank is voting trustee are owned by the Baltimore & Ohio and represent a controlling interest in the W.M. Mr. Grotz has worked at various times with many other railroads as a representative of the bank. He also has taken an active part in formulating national transportation policy through the Transportation Association of America and the United States Chamber of Commerce.

Mr. Williams was born in Romney, W. Va., on November 27, 1892, and received his bachelor of law degree from the University of Virginia in 1916. Admitted to the Maryland bar in the following year, he practiced law in Cumberland, Md., until he entered the Western Maryland's law department on February 15, 1923. In turn, he was appointed general attorney and general solicitor, and was made head of the law department as general counsel in 1934. Mr. Williams was elected vice-president in 1935. He held both positions until his election as president and chairman on January 1, 1948.

During the first World War Mr. Williams served in the Field Artillery. In 1942 he again went into service, this time as a captain in the Army Air Forces. After serving in the European theater of operations as an intelligence officer for the 8th Air Force, he was discharged in October 1945 with the rank of lieutenant colonel.

The original predecessor of the Western Maryland—the Baltimore, Carroll & Frederick—was chartered on May 27, 1852, and the present railroad is the outgrowth of more than 30 separate companies. The centennial of the W.M.'s "birth" will be marked by *Railway Age* with an illustrated feature story scheduled to appear in the May 12 issue. Mr. Williams announced in the road's recently released annual report for 1951 that "appropriate commemorative ceremonies and other activities contemplating public participation will be announced from time to time in the months ahead."

Railway Age's 1952 Survey of

Diesel-Electric Locomotive Units in Railway Service

American railways added 3,624 diesel-electric locomotive units to their rapidly expanding fleets during 1951. Of these, Class I railroads added 3,463 units and 5,119,150 horsepower to chalk up an expansion of nearly 25 per cent in the number of units and nearly 28 per cent in total horsepower over the inventory of the previous year.

The nation's railways entered 1952 with a total of 18,964 diesel-electric locomotive units. Of these, 17,610 units, representing 23,561,137 horsepower, comprised the power of Class I line-haul railroads and compared with 14,147 units aggregating 18,432,487 horsepower as of December 31, 1950. This increase included 11 units of 2,500 hp.; 20 units of 2,400 hp.; 136 units of 2,250 hp.; 35 units of 2,000 hp.; 687 units of 1,600 hp., and 1,835 units of 1,500 hp.

At the end of 1951 switching and terminal companies and Class II and III railroads owned 1,354 diesel-electric locomotive units with a total of 1,239,290 hp.

Diesel-electric locomotive units in service on Class I line-haul railroads (excluding switching and terminal companies), as of December 31, 1951, were as follows:

Number of Units	Horsepower Each Unit	Total Horsepower
36	3,000	108,000
42	2,400-2,500	103,000
255	2,250	573,750
1,310	1,800-2,000	2,613,400
965	1,600	1,544,000
7,469	1,500	11,203,500
1,173	1,350	1,583,550
6,360	1,200 or less	5,831,937
Total 17,610		23,561,137

A similar tabulation was published in the May 14, 1951, *Railway Age* and the May 1951 *Railway Mechanical and Electrical Engineer*, covering diesel-locomotive statistics for 1950.

DIESEL-ELECTRIC LOCOMOTIVE UNITS IN SERVICE ON CLASS I RAILROADS

Excluding Switching & Terminal Companies—As of December 31, 1951

Railroad	Number of Units in Various Horsepower Classes*								Total	
	3000	2400 or 2500	2250	1800 or 2000	1600	1500	1350	1200 or less	Units	Horsepower†
Akron, Canton & Youngstown	....	....	....	5	3	1	....	2	11	18,300
Ann Arbor	....	....	....	....	14	....	....	9	23	28,720
Atlanta & St. Andrews Bay	....	....	....	....	....	1	....	12	13	13,500
Atlanta & West Point—W. of Ala	....	....	....	....	....	14	....	7	21	28,200
Atlantic & Danville	....	....	....	....	1	6	....	....	7	10,600
Atchison, Topeka & Santa Fe	....	....	....	66	19	511	320	256	1,172	1,605,530
Atlantic Coast Line	....	....	5	59	....	302	72	107	545	801,050
Baltimore & Ohio	....	....	8	44	10	272	24	239	597	793,660
Bangor & Aroostook	....	....	....	2	....	32	....	4	38	56,000
Bessemer & Lake Erie	....	....	....	....	....	31	....	2	33	48,030
Boston & Maine	....	....	1	21	....	34	68	71	195	239,550
Cambria & Indiana	....	....	....	....	....	....	....	2	2	2,400
Central of Georgia	....	....	2	10	....	41	....	25	78	107,980
Central of N. J.—Cent. of Pa	....	....	....	6	16	44	....	60	126	160,060
Central Vermont	....	....	....	....	....	....	....	4	4	4,000
Charleston & W. Carolina	....	....	....	....	....	27	....	2	29	42,900
Chesapeake & Ohio, incl. P.M	....	....	22	12	26	151	....	179	390	529,180
Chicago & Eastern Illinois	....	....	....	3	....	66	....	24	93	124,400
C. & N. W.—C. St. P. M. & O.	....	....	8	10	17	194	8	188	455	584,170
Chicago, Burlington & Quincy	....	....	22	58	....	163	74	173	490	672,800
Chicago Great Western	....	....	....	9	....	84	....	41	134	180,235
Chicago, Indianapolis & Louisville	....	....	....	....	....	47	....	10	57	79,700
Chicago, Milwaukee, St. P. & Pac.	....	....	....	35	22	173	52	208	490	636,460
Chicago, Rock Island & Pacific	....	....	7	31	35	139	48	153	413	517,560
Clinchfield	....	....	....	....	....	38	....	6	44	64,200
Colorado & Southern	....	....	....	2	....	12	....	5	19	27,200
Colorado & Wyoming	....	....	....	....	....	4	....	3	7	9,000
Columbus & Greenville	....	....	....	....	....	6	....	2	8	10,132
Delaware & Hudson	....	....	....	....	....	53	....	50	103	129,500
Delaware, Lackawanna & Western	....	....	10	....	....	71	20	61	162	202,840

*Number of Units Based on A. A. R. Statistics. † Horsepower Compiled by the Simmons-Boardman Publishing Corporation.

DIESEL-ELECTRIC LOCOMOTIVE UNITS IN SERVICE ON CLASS I RAILROADS—CONTINUED

Railroad	Number of Units in Various Horsepower Classes								Total	
	3000	2400 or 2500	2250	1800 or 2000	1600	1500	1350	1200 or less	Units	Horsepower
Denver & Rio Grande Western	....	....	....	6	5	79	48	37	175	234,760
Detroit & Mackinac	....	....	....	....	....	6	....	1	7	9,660
Detroit & Toledo Shore Line	....	....	....	....	....	4	....	4	8	10,800
Detroit, Toledo & Ironton	....	....	....	....	....	5	....	14	19	21,700
Duluth, So. Shore & Atlantic	....	....	....	4	....	9	....	8	21	29,500
Elgin, Joliet & Eastern	....	....	....	36	....	14	....	111	161	187,900
Erie	....	....	16	12	58	165	24	129	404	552,780
Florida East Coast	....	....	....	26	....	23	....	....	49	86,500
Ft. Worth & Denver	....	....	2	2	....	12	....	5	21	31,100
Georgia & Florida	....	....	....	....	....	6	....	3	9	10,800
Georgia	....	....	....	....	....	13	....	10	23	29,900
Grand Trunk Western	....	....	....	....	....	22	....	36	58	67,700
Great Northern	....	....	....	13	....	239	96	118	466	631,500
Green Bay & Western	....	....	....	....	....	11	....	4	15	19,420
Gulf Coast Lines	....	....	....	2	....	52	....	19	73	99,650
Gulf, Mobile & Ohio	....	....	....	17	8	153	....	68	246	344,540
Illinois Central	....	....	8	22	....	2	4	137	173	214,980
Illinois Terminal	....	....	....	....	....	....	....	19	19	19,000
International-Great Northern	....	....	2	4	....	43	....	11	60	85,260
Kansas City Southern	....	....	....	11	....	47	....	35	93	129,160
Lake Superior & Ishpeming	....	....	....	....	2	3	....	1	6	8,700
Lehigh & Hudson River	....	....	....	....	13	....	....	....	13	20,800
Lehigh & New England	....	....	....	....	....	26	....	7	33	45,440
Lehigh Valley	....	....	....	14	10	66	8	126	224	271,260
Long Island	....	4	....	8	8	1	....	45	66	77,440
Louisiana & Arkansas	....	....	....	3	....	39	....	22	64	88,500
Louisville & Nashville	....	....	4	28	10	136	....	137	315	409,220
Maine Central	....	....	....	7	....	25	....	27	59	71,560
Midland Valley-K. O. & G.-O. C.-A.-A.	....	....	....	....	....	6	....	1	7	10,000
Minneapolis & St. Louis	....	....	....	....	....	16	9	46	71	78,950
Minneapolis, St. P & S. Ste. Marie	....	....	....	....	....	96	....	18	114	160,980
Missouri-Illinois	....	....	....	....	....	1	....	3	4	5,700
Missouri-Kansas-Texas	....	....	19	6	29	91	....	28	173	265,650
Missouri Pacific	....	....	12	22	33	177	24	143	411	568,800
Nashville, Chatt. & St. Louis	....	....	....	....	....	86	....	43	129	170,420
New York Central System	....	....	18	103	213	343	10	550	1,237	1,548,160
New York, Chicago & St. Louis	....	....	....	11	....	13	....	93	117	135,140
New York, New Haven & Hartford	....	2	....	87	45	62	....	159	355	459,420
New York, Ontario & Western	....	....	....	....	....	7	18	22	47	56,180
New York, Susquehanna & Western	....	....	....	....	....	....	....	22	22	20,380
Norfolk Southern	....	....	....	....	5	10	....	8	23	28,780
Northern Pacific	....	....	....	....	....	135	44	68	247	328,740
Northwestern Pacific	....	....	....	....	2	13	....	9	24	27,460
Pennsylvania	22	36	28	213	169	376	....	701	1,545	2,072,790
Pennsylvania-Reading Seashore Lines	....	....	....	....	....	6	....	1	7	9,800
Pittsburgh & Lake Erie	....	....	....	4	...	10	....	47	61	72,000
Pittsburgh & West Virginia	....	....	....	10	1	....	....	1	12	22,600
Reading	....	....	....	....	50	54	20	117	241	292,560
Richmond, Fredericksburg & Potomac	....	....	10	....	....	25	....	22	57	82,000
Rutland	....	....	....	....	5	....	....	7	12	14,600
St. Louis-San Francisco	....	....	17	6	....	242	....	103	368	512,150
St. Louis Southwestern	....	....	....	3	8	33	20	36	100	132,100
Sacramento Northern	....	....	....	....	....	....	....	6	6	2,280
Seaboard Air Line	14	....	6	54	72	144	44	65	399	618,020
Southern Pacific (Pacific)	....	....	1	42	7	526	. .	199	775	1,071,630
Southern System	....	....	7	35	32	399	70	176	719	1,001,950
Spokane International	....	....	....	....	....	....	....	9	9	9,000
Spokane, Portland & Seattle	....	....	....	1	2	44	....	28	75	99,120
Staten Island Rapid Transit	....	....	....	....	....	....	....	8	8	6,800
Tennessee Central	....	....	....	....	4	6	....	5	15	19,720
Texas & New Orleans	....	....	....	12	....	100	....	77	189	250,260
Texas & Pacific	....	....	8	10	....	134	....	32	184	273,400
Texas Mexican	....	....	....	....	....	5	....	13	18	16,820
Toledo, Peoria & Western	....	....	....	....	....	10	....	3	13	18,000
Union (Pittsburgh)	....	....	....	....	3	24	....	107	134	136,950
Union Pacific	....	....	....	65	....	329	....	207	601	837,080
Wabash	....	....	12	8	....	130	....	84	234	315,620
Western Maryland	....	....	....	....	8	35	....	24	67	86,360
Western Pacific	....	....	....	....	....	63	48	30	141	185,380
Total	36	††42	255	**1,310	965	7,469	1,173	6,360	17,610	23,561,137

** Includes 33 1800 horsepower units. ††Includes 22 2500 horsepower units.

Note: Since the number of diesel-electric locomotive units in the above tabulation were based on A. A. R. statistics, only those units, received by the railroads from the builders, that were reported to the A. A. R. as installed in 1951, were included.

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(Continued from page 18)

comotives. In the first quarter of last year Class I roads installed 619 new units, all diesel-electric except two steam.

PASSENGER CARS

The **Ontario Northland** has ordered three 73-ft. steel baggage cars from the National Steel Car Corporation at an estimated cost of $240,000. Delivery is expected early next year.

LOCOMOTIVES

The **Louisville & Nashville** has ordered 55 diesel-electric locomotive units at an approximate cost of $7,400,000. About $200,000 also has been authorized for additional road facilities for the new equipment. The American Locomotive-General Electric Companies will build two 1,600-hp. "A" and seven 1,600-hp. "B" freight units, 12 1,600-hp. road-switchers and 16 1,000-hp. yard-switchers; the Electro-Motive Division of General Motors Corporation, 15 1,500-hp. general purpose units and three 1,200-hp. yard-switchers. All units are scheduled for delivery in the last quarter of this year. They will be used principally on the road's southern divisions and in switching operations at Louisville, Ky., Corbin and DeCoursey, Birmingham, Ala., and Montgomery, Knoxville, Tenn., and Shawneetown, Ill. When these units are delivered, the L. & N.'s locomotive ownership will be almost equally divided between steam and diesel.

The **Nashville, Chattanooga & St. Louis** has received approval from its board of directors for the purchase of three G. P.-7 locomotives from the Electro-Motive Division of General Motors at an estimated cost of $150,000 each.

The **Norfolk Southern** has ordered five 1,600-hp. diesel-electric freight locomotives from the Baldwin-Lima-Hamilton Corporation, with delivery scheduled to begin late this summer. The locomotives, costing approximately $800,000, will be financed through the Wachovia Bank & Trust Co. of Raleigh, N.C.

SIGNALING

The **Pennsylvania** has ordered from the Union Switch & Signal Division of the Westinghouse Air Brake Company material to install remotely controlled signaling between Brookville, Ohio, and West Manchester, 13.6 miles. In addition to the style C control machine, to be installed at West Manchester, the order includes styles PL-5 high and PL dwarf position-light signals, M-3 electric switch machines, relays, rectifiers, transformers, switch circuit controllers and housings. Field installation will be handled by railroad forces.

SUPPLY TRADE

Arthur M. Bixby, formerly assistant to president of the **Waugh Equipment Company,** has been elected vice-president of the company.

Walter C. Storz has been appointed purchasing agent of **W. H. Miner, Inc.,** Chicago, to succeed the late **Harry F. Schwartzenberg,** who died recently following an automobile accident.

John F. Byrom has been appointed sales engineer, railway division, of the **Timken Roller Bearing Company,** at Minneapolis. Mr. Byrom formerly worked in the same capacity at the Chicago office. All railway division activities in both Chicago and Minneapolis territories remain under supervision of **Paul N. Wilson,** district manager.

Charles H. Hobbs, formerly district manager at St. Louis for the **Pyle-National Company,** has been appointed manager of railroad sales, with headquarters in Chicago. Mr. Hobbs succeeds **Samuel MacClurkan,** who has resigned to join the **Thermo-King Railway Corporation,** as an-

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BECAUSE HE'S WALKING ON
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RUNNING BOARDS
Serrated edge bearing bars —plus twisted crossbars— assure safe footing under all weather conditions. Other outstanding features of Blaw-Knox Running Boards are:
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BLAW-KNOX CROSSINGS?
Electroforged sections are easy to install and easy to remove for track maintenance. Last as long as the rails themselves. Complete details will be furnished on request.

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Samuel MacClurkan, who has been elected vice-president of the newly formed Thermo-King Railway Corporation, Chicago, a subsidiary of the U. S. Thermo Control Company of Minneapolis (*Railway Age*, April 21, page 18). Mr. MacClurkan will direct railway sales of the company's automatic car refrigeration systems. He was formerly manager of railway sales for the Pyle-National Company, and has spent his entire business career in the railway supply, steamship and railroad industries.

nounced elsewhere in these columns. Pyle-National also has announced other changes, as follows: **Robert P. Underwood,** transferred from the Chicago sales office to St. Louis; **Harland R. Benike,** temporarily engaged in special work in the headquarters sales office in Chicago, returned to his former position as sales representative in St. Paul; and **Robert R. Andersen,** who relieved Mr. Benike in St. Paul, transferred to Chicago, to handle special assignments.

Morse G. Dial has been elected president of the **Union Carbide & Carbon Corp.,** to succeed **Fred H. Haggerson,** who continues as chairman of the board. Mr. Dial joined the corporation in 1929. He was elected assistant secretary and assistant treasurer in 1939; secretary and treasurer in 1945; vice-president and director in 1949; and executive vice-president and executive committee member in 1951.

Vernon L. Johnson, who has been appointed regional sales manager of the Clark Equipment Company's northeastern region, as reported in last week's *Railway Age*, page 74.

William E. Withall, assistant to president of **W. H. Miner, Inc.,** at Chicago, has been elected first vice-president. Mr. Withall began his career with the company in 1937 in its foundry and research laboratory, and in 1941 was transferred to the sales department. He continued in that department until 1942, when he enlisted in the Navy. Upon his return to the Miner organization in 1946, he became assistant to the president.

William E. Withall

OBITUARY

Wallace B. Phillips, president of the Pyrene Manufacturing Company, Newark, N.J., whose death was reported in last week's *Railway Age*, page 74, was born in New York on March 30, 1886. In 1912, Mr. Phillips went to England as chairman and managing director of the Pyrene Company, Ltd., and retained that position until he returned to the United States in 1950 to become executive head of the parent company. In 1916 he incorporated Ets Phillips & Pain, in Paris, with contractual relations to Pyrene, which was followed by Belgian and Spanish companies having similar titles.

Wallace B. Phillips

FINANCIAL

Toledo, Peoria & Western. — *Stock Split.*—In last week's issue, these columns reported that a plan, approved by this road's board of directors, would involve a 1,600-to-1 split in the present capital stock. Actually the plan, which will result in an application being made to the I.C.C., calls for a split of 1,800-to-1. The road's present capital stock consists of 50 shares of common stock with a par value of $100 per share. The company has an earned surplus of $4,482,221, which, under the new plan, will support 90,000 shares of common stock of a stated value of $45 each.

At the time of the road's board meeting, the George P. McNear estate, holder of 85 per cent of the common stock, passed from executorship to trusteeship. Guy A. Gladson, a senior partner in the Chicago law firm of Winston, Strawn, Black & Towner, former co-executor, became co-trustee of the estate with the Wilmington Trust Company of Delaware, and was elected chairman of the board of the T.P.&W.

The road's stockholders have approved an increase in the membership of the board from seven to nine. Mr. Gladson's election to both membership and chairmanship brings the actual membership of the board to eight.

The road will shortly request permission from the I.C.C. to reincorporate in Delaware under the name of the Toledo, Peoria & Western Railroad Company. Presently, the T.P.&W. is an Illinois corporation.

Dividends Declared

DALLAS RY. & TERMINAL.—common, 35¢, quarterly; 7% preferred, $1.75, quarterly, both payable May 1 to holders of record April 16.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—common, 75¢, quarterly; extra, 25¢ both payable June 2 to holders of record May 8.

NORTHERN (NEW HAMPSHIRE).—$1.50, quarterly, payable April 30 to holders of record April 17.

ONTARIO & QUEBEC.—$3, semiannual, payable June 2 to holders of record May 1.

Security Price Averages

	Apr. 22	Prev. Week	Last Year
Average price of 20 representative railway stocks	58.28	58.12	55.37
Average price of 20 representative railway bonds	93.48	93.08	95.25

Tabular summaries of annual reports of nine Class I railroads, and table of Selected Income and Balance Sheet Items of Class I railways for December and 12 months of 1951. appear on page 61.

LITERATURE and PAMPHLETS Offered by *Railway Age* Advertisers

Following is a compilation of literature, pamphlets and data sheets offered free-of-charge by advertisers in the four April issues of RAILWAY AGE. To receive the additional data desired, merely circle the item number(s) on the card below.

802. Foam-Spray Cleaning Methods
Oakite Products, Inc. Complete data on mechanized Oakite Foam-Spray method for applying cleaning solutions in maintenance washing.

803. Ballast Cleaners
The Matisa Equipment Corporation. Details on availability of the 1951 cleaner, the ballast cleaner reaching under the ties.

804. Diesel Engine Air Grille
Farr Company. Complete information on the Farr-Air Dynamic Grille and other railroad products.

805. Electrical Parts Cleaner
Dearborn Chemical Company. Complete information on the Dearborn line of cleaners for every railroad need, including the Electrical Parts Cleaner No. 92.

806. Gun Iron Cast Diesel Parts
Hunt-Spiller Mfg. Corp. A practical guide for the user of iron and steel castings, "Bulletin on Modern Metallurgy"; 24 pages of technical data on many types of metals and alloys.

807. Interlocking Couplers
American Steel Foundries. ASF Folder C2 illustrates and explains features of ASF-built Type F Interlocking Couplers.

808. Torque-Control Crane
Orton Crane Shovel Co. Catalog #83 describes and pictures the Orton Crane with GM Allison Torque Converter.

809. Eye Protectors
Willson Products, Inc. Bulletin available describes the Willson line of eye protection equipment.

810. Radiography
Eastman Kodak Company. Booklet available on this important function of photography—"Radiography as a Foundry Tool".

811. Steam Heat Connections
Barco Manufacturing Co. Complete information on Barco steam heat connections for passenger cars, diesel and steam locomotives.

812. Industrial Truck Maintenance
Baker Industrial Truck Div Baker-Raulang Co. 16-page picture-story manual "Care and Maintenance of Industrial Trucks".

813. Cab Signal Equipment
Union Switch & Signal Div. Westinghouse Air Brake Co. Full details on "Union" Type E Cab Signal equipment for two, three or four-indication signaling.

814. Reflective Sheeting
Minnesota Mining & Mfg. Co. Complete information on Scotchlite Reflective Sheeting for signs and signals in informative booklet "Reflect and Protect".

815. Railroad Radio
Westinghouse Electric Corp. Booklet B-4748 "Designed for Availability" gives complete story of Westinghouse FE Railroad Radio.

816. Unicel Freight Car
Pressed Steel Car Co., Inc. Complete information available on the Unicel combination refrigerator-box car.

817. Rolling Steel Doors
The R. C. Mahon Company. Catalog No. G-52 gives complete information on the Mahon line of rolling steel doors, including the Underwriters' Labeled Rolling Steel Fire Doors.

818. Hot Spray Synthetic Freight Car Enamel
The Sherwin-Williams Company. Full details available on the new Sherwin-Williams Hot Spray Enamel for finishing freight cars.

819. Storage Batteries
Gould-National Batteries, Inc. Full information on the Gould Plus-Performance Plan in booklet available to users of batteries of any make.

820. Hungerford Cartoon Ad
Edgewater Steel Company. Enlarged copies of the Hungerford cartoon segment of this ad series available without advertising.

821. Inspection Car
Fairbanks-Morse & Co. Complete details offered by Fairbanks-Morse on the new FM Model 101 inspection car, featuring simple friction drive transmission with four forward speeds and three reverse.

822. Portable Flame Cutting Machines
Oxweld Railroad Service Co. Div. Union Carbide & Carbon Corp. Information available on the Oxweld portable flame cutting machine for producing parts of many sizes and shapes.

823. Lace-On Type Pipe Insulation
Union Asbestos & Rubber Company. Folder No. 76-136 completely describes the Unarco Wovenstone type of lace-on pipe insulation with a neoprene-coated asbestos jacket.

(Continued first column reverse side)

Additional Product Information

This is a complete list of products mentioned in the advertisements in this issue. For more data on any product shown, circle the page number(s) on the reply cards below, fill in and mail. Note: If the advertiser mentions more than one product, or if more than one ad appears on the page, *write in* the name of the product you are interested in.

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Brake Steps	30
Cars, Freight	32
Carliner, Creped Kraft	65
Cars, Tank	36
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Castings, Gun Iron	68
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Chemical Cleaners	19
Chilled Car Wheels	24
Chisel, Track	64
Cleaner, Ballast	9
Cleaner, Electrical Parts	19
Communication, Inductive Train	6
Connections, Steam Heat	2
Coupler, Interlocking	10
Cranes	62
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Curtains, Vestibule	30
Diaphragms, Vestibule	30
Diesel-Electric Locomotives	26
Diesel-Electric Road Switchers	20
Diesel Lubricants	69
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(Continued third column reverse side)

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LITERATURE & PAMPHLETS

824. Story of National Bearing Div.
National Bearing Div. American Brake Shoe Company. Catalog gives complete picture story of National Bearing facilities, from research through final precision machining.

825. Roller Conveyors
Standard Conveyor Company. Standard Bulletin 63B describes gravity and power conveyor units, including Litewate sectional, all purpose and Handibelt conveyors.

826. Electric Trucks
Yale & Towne Manufacturing Co. New detailed bulletin "The Yale Electric Truck" describes the Yale electric line featuring Hypoid Gears, Involute Spline Drive Shaft, Lift Channels, and Inclined King Pins.

827. Car Heating System
Vapor Heating Corporation. New informative brochure "The Vapor Unizone System With Unit Radiation" contains the Unizone story—open body car heating system.

828. Circuit Breakers
Westinghouse Electric Corporation. Bulletin B-4062 gives complete data on specification of circuit protection equipment.

829. Luggage Racks
The Adams & Westlake Company. Complete information offered by Adams & Westlake on the Adlake luggage racks.

830. 50-Ton All Steel Gondola Cars
Chicago Freight Car & Parts Co. Complete construction details available on the CFC 50-ton general purpose all steel gondola cars.

831. Hook-Flange Guard Rails
Bethlehem Steel Company. Folder No. 555 contains helpful data and a full diagrammatic page devoted to lengths and settings of Hook-Flange Guard Rails.

832. Mechanical Facing Point Locks
Union Switch & Signal Div. Westinghouse Air Brake Co. Complete information available on "Union" Mechanical Facing Point Locks for spring switches.

833. Welding Equipment
Westinghouse Electric Corporation. Full information on the Westinghouse D-C Rectifier Welder with arc-drive control and other welding equipment.

834. Gas Cutting Machine
Air Reduction Sales Company. 12-page booklet gives complete data on the Airco No. 50 Travograph gas cutting machine.

835. Freight Car Coating
J. W. Mortell Co. Circular on Railway Insulmat, the 3-purpose coating used for interior walls of all types cars.

836. Protective Finish
McDougall-Butler Co., Inc. Information offered on the new Ferrolastic chemical resistant coating.

837. Friction Draft Gear
National Malleable and Steel Castings Co. Report No. 950 on AAR 5 and 12 year tests (taken from the annual report of the AAR Committee on Couplers and Draft Gears).

838. Vinylite Resins
Bakelite Co. Div. Union Carbide & Carbon Corp. Full information on tie pads made of wiry abaca fibers compounded under pressure with Vinylite Brand Resins.

839. Electric Typewriters
Remington Rand Inc. Folder RE8499 "Take a Letter" describes the Remington Electriconomy Typewriter.

840. Plastic Flooring—Terraflex
Johns-Manville. Full details available on how Johns-Manville Terraflex flexible vinyl plastic can help solve passenger car flooring problems.

841. Welded Rail Sections
Oxweld Railroad Service Co. Div. Union Carbide & Carbon Corp. Booklet F-7772 gives full details of the Elgin, Joliet and Eastern Railroad's experience with continuous rail.

842. Brake Shoe Controller
American Brake Shoe Company. Full information on the American 3 in 1 Brake Shoe Controller, capable of warning enginemen even when power plant is cut out.

843. Automatic Crossing Signals
Western Railroad Supply Company. Brochure 748-RA4 gives complete story of Western's Model 10 automatically operated crossing signal.

844. Railroad Fasteners
Lewis Bolt & Nut Company. Samples, prices and full details available on Lewis' Sealtite railroad fasteners.

845. "Syncrostep" For Remote Control
General Railway Signal Company. Pamphlet #716 describes "Syncrostep" for remotely controlling large or small interlockings.

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ANNUAL REPORTS

Railroad		Operating Revenues	Operating Expenses	Fixed Charges	Net Income	Current Assets*	Current Liabilities*	Long Term Debt*
Northern Pacific	1951	173,747,860	137,143,007	10,237,159	15,961,859	74,548,578	42,834,259	268,322,359
	1950	167,228,069	121,845,190	10,370,763	19,510,767	92,944,954	40,102,180	268,915,830
Peoria & Eastern	1951	6,882,793	4,478,785	5,267	1,029,121	3,210	3,210	10,921,386
	1950	6,155,026	4,513,681	5,682	658,868	3,210	3,371	11,883,188
Peoria & Pekin Union	1951	3,067,868	2,307,287	90,158	320,781	2,216,829	968,305	3,011,722
	1950	2,793,633	1,991,890	97,090	477,221	2,056,253	928,263	2,997,613
St. Louis-San Francisco	1951	134,275,431	102,908,726	3,755,288	9,350,916	57,165,730	32,257,672	139,000,058
	1950	123,188,017	90,624,486	3,586,274	11,071,157	55,783,968	32,443,447	145,528,704
St. Louis Southwestern	1951	69,750,767	42,597,342	1,215,650	7,862,763	30,226,448	20,366,316	33,368,789
	1950	62,525,910	36,344,920	1,482,433	9,960,431	29,567,225	16,771,326	35,851,039
Savannah & Atlanta	1951	3,428,262	2,213,685	61,409	353,776	2,197,339	1,331,969	1,237,500
	1950	3,216,562	1,997,668	62,692	506,829	2,338,393	1,401,088	1,387,500
Texas & Pacific	1951	77,566,514	54,297,649	3,014,780	8,509,651	33,559,761	15,683,314	82,247,556
	1950	70,731,267	48,696,022	2,861,125	8,251,486	33,877,198	14,322,257	70,001,488
Virginian	1951	47,410,451	28,145,102	2,112,856	7,114,379	23,909,119	15,041,813	70,386,639
	1950	33,213,159	20,039,914	2,179,741	6,708,338	15,776,926	9,673,958	72,133,668
Wabash	1951	111,022,651	83,151,447	2,195,599	8,561,637	32,499,634	26,875,871	88,789,366
	1950	104,357,675	75,339,457	1,972,242	9,249,526	35,517,431	27,736,629	84,435,608

* On December 31.

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 127 reports (Form IBS) representing 131 steam railways

(Switching and Terminal Companies Not Included)

Income Items	United States For the month of December 1951	1950	For the twelve months of 1951	1950
1. Net railway operating income	$135,158,155	$114,068,309	$942,682,072	$1,039,621,543
2. Other income	72,506,291	58,854,146	273,465,512	265,630,013
3. Total income	207,664,446	172,922,455	1,216,147,584	1,305,251,556
4. Miscellaneous deductions from income	6,165,759	5,494,938	57,396,957	47,787,254
5. Income available for fixed charges	201,498,687	167,427,517	1,158,750,627	1,257,464,302
6. Fixed charges:				
6–01. Rent for leased roads and equipment	13,114,831	9,589,350	115,892,269	123,065,269
6–02. Interest deductions[1]	24,883,050	25,763,645	300,409,602	301,266,205
6–03. Amortization of discount on funded debt	680,934	578,371	3,330,911	3,055,550
6–04. Total fixed charges	38,678,815	35,931,366	419,632,782	427,387,024
7. Income after fixed charges	162,819,872	131,496,151	739,117,845	830,077,278
8. Other Deductions	12,158,451	11,282,150	46,061,263	46,793,357
9. Net income	150,661,421	120,214,001	693,056,582	783,283,921
10. Depreciation (Way and structures and Equipment)	43,071,880	36,962,526	455,389,744	429,636,103
11. Amortization of defense projects	d40,209,947	2,797,564	4,933,089	17,541,062
12. Federal income taxes	50,783,861	103,793,271	566,868,972	601,185,626
13. Dividend appropriations:				
13–01. On common stock	22,343,617	22,556,246	240,577,352	232,907,039
13–02. On preferred stock	6,077,899	7,434,837	87,828,298	79,119,703
Ratio of income to fixed charges (Item 5—6—04)	5.21	4.66	2.76	2.94

Selected Expenditure and Asset Items	United States Balance at the end of December 1951	1950
17. Expenditures (gross) for additions and betterments—Road	$363,122,108	$286,442,503
18. Expenditures (gross) for additions and betterments—Equipment	1,050,849,031	779,399,092
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	477,382,824	463,252,649
20. Other unadjusted debits	104,995,230	96,120,979
21. Cash	883,619,891	955,497,603
22. Temporary cash investments	859,084,635	974,931,796
23. Special deposits	80,182,567	119,260,628
24. Loans and bills receivable	1,630,851	898,730
25. Traffic and car-service balances—Dr.	51,562,896	51,654,339
26. Net balance receivable from agents and conductors	172,530,676	175,042,435
27. Miscellaneous accounts receivable	475,448,384	481,753,093
28. Materials and supplies	909,490,278	725,845,542
29. Interest and dividends receivable	13,676,987	13,518,926
30. Accrued accounts receivable	221,589,099	223,216,534
31. Other current assets	33,767,884	36,811,730
32. Total current assets (items 21 to 31)	3,702,584,148	3,758,431,356
Selected Liability Items		
40. Funded debt maturing within 6 months[2]	$175,719,677	$149,265,430
41. Loans and bills payable[3]	3,271,667	1,638,500
42. Traffic and car-service balances—Cr.	114,930,125	117,948,893
43. Audited accounts and wages payable	540,038,307	516,761,620
44. Miscellaneous accounts payable	202,364,463	230,986,242
45. Interest matured unpaid	52,156,548	53,382,163
46. Dividends matured unpaid	24,426,929	30,171,749
47. Unmatured interest accrued	73,151,198	72,281,027
48. Unmatured dividends declared	21,645,169	16,992,178
49. Accrued accounts payable	262,134,472	201,465,987
50. Taxes accrued	877,862,460	892,502,113
51. Other current liabilities	90,388,266	92,580,928
52. Total current liabilities (items 41 to 51)	2,262,369,604	2,226,711,409
53. Analysis of taxes accrued:		
53–01. U. S. Government taxes	724,571,716	742,822,271
53–02. Other than U. S. Government taxes	153,290,744	149,679,842
54. Other unadjusted credits	292,025,148	260,457,132

d Decrease, deficit, or other reverse item.
[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.
[3] Includes obligations which mature not more than one year after date of issue.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.
Subject to revision.

RAILWAY OFFICERS

EXECUTIVE

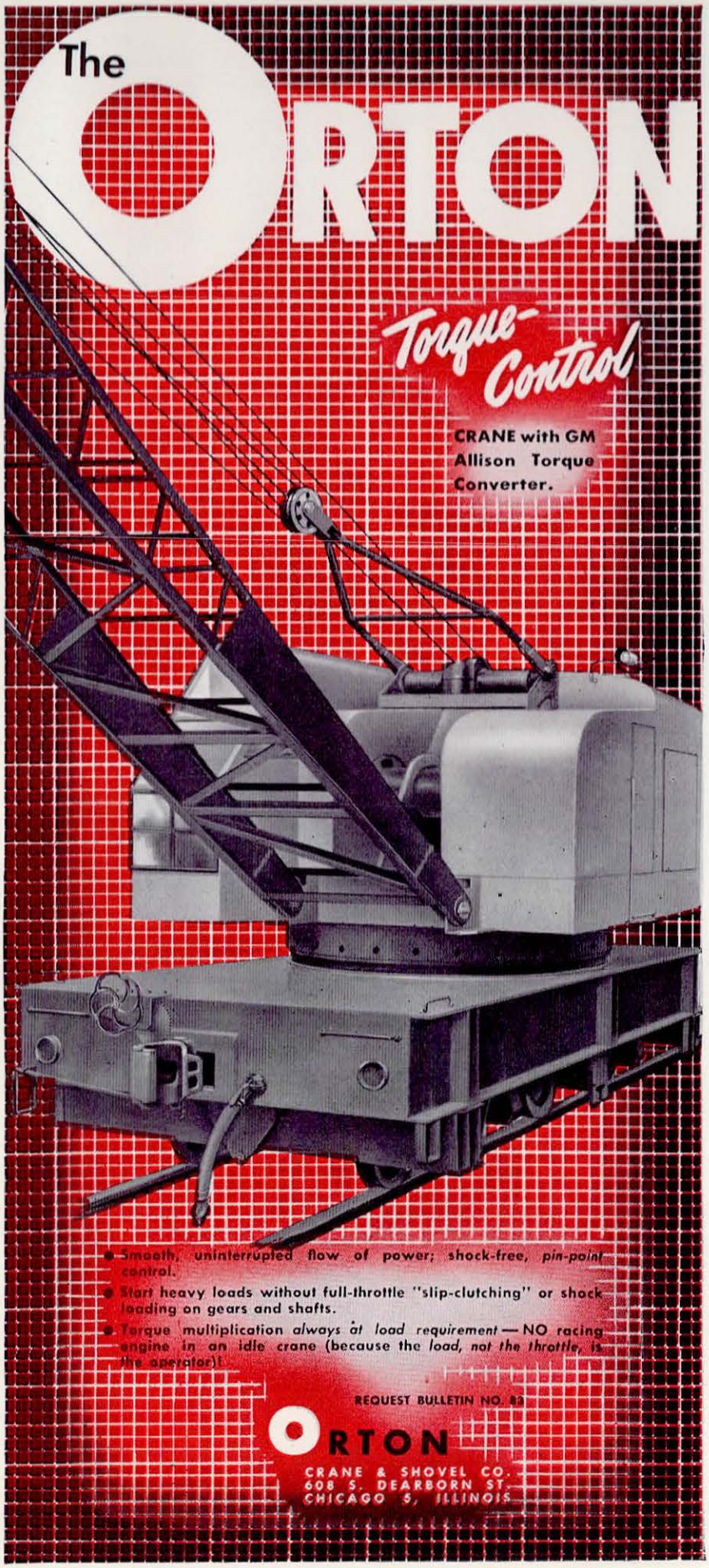
LeRoy H. Hines has been appointed to the newly created position of vice-president in charge of oil development of the NORTHERN PACIFIC at San Francisco. Mr. Hines has been associated with the Standard Oil Company of California since 1935 and assistant to the vice-president since July 1951. From 1929 to 1935 he was employed in the oil and gas leasing division of the U.S. Department of the Interior at Washington, D.C.

LeRoy H. Hines

At the present time three wells are in production on the N.P.'s reserved land in Montana. Eleven others are being drilled, or are about to be drilled, at various locations in the newly discovered Williston basin deposits in North Dakota and Montana.

J. W. Devins has been named president of the Minneapolis RAILWAY TRANSFER COMPANY, (a wholly owned subsidiary of the Minneapolis & St. Louis). Mr. Devins is vice-president and general manager of the M. & St. L.

P. T. Moran, whose appointment as general manager of the ELGIN, JOLIET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& EASTERN at Chicago was reported in *Railway Age* March 3, has been elected vice-president. Mr. Moran began his railroad career in 1914 with the Atchison, Topeka & Santa Fe, where he served as clerk, agent and telegrapher until 1920, when he joined the E.J. &

P. T. Moran

E. as telegrapher. He subsequently became relief agent and train dispatcher, and in 1940 was appointed transportation inspector. He was appointed trainmaster in 1941, assistant superintendent in 1944 and superintendent in 1946. He was named general superintendent in 1948, and in February of this year was appointed general manager.

FINANCIAL, LEGAL & ACCOUNTING

Edwin M. Talbott, special accountant of the BALTIMORE & OHIO, has been promoted to assistant to comptroller at Baltimore.

J. E. Walker, district claim agent for the GREAT NORTHERN at Superior, Wis., has been appointed general claims agent, succeeding **T. P. O'Connell,** who has retired as general claims attorney. **R. W. Plunkett,** district claim agent at St. Paul, has been appointed assistant general claims agent at the same point. **L. G. Dunning,** assistant to general claims attorney at St. Paul, has been named district claim agent at Havre, Mont. **L. E. Davis,** claim agent at Minot, N. D., has been promoted to district claim agent at Superior; **J. D. Estlund,** claim agent at Minneapolis, has been transferred to Minot, and **F. T. Heimdahl,** claim agent at Havre, has been appointed district claim agent at Minneapolis.

Mr. Walker joined the G.N. as assistant claim agent at Great Falls, Mont., in 1917, after prior service with the Burlington and the Canadian National. He became assistant claim agent at Havre in 1918, and claim agent at Superior in 1920, and since 1927 has been district claim agent there.

OPERATING

As reported in *Railway Age* March 10, **J. H. Wallis** has been appointed superintendent of communications of the BALTIMORE & OHIO at Baltimore. Mr. Wallis entered the service of the B.&O. in April 1944 as communications engineer. Previously he had been staff

J. H. Wallis

member, Radiation Laboratory, Massachusetts Institute of Technology, Cambridge, Mass.; engineer of the Communication Equipment & Engineering Co., Chicago; and engineer for radio stations KWTO-KGBX in Springfield, Mo.

O. W. Limestall has been appointed general manager of the CHICAGO, ROCK ISLAND & PACIFIC at El Reno, Okla., as correctly reported by *Railway Age* on April 14. Mr. Limestall was incorrectly reported in the April 7 issue as having been appointed assistant general manager.

T. H. Meeks, asssitant to general manager of SOUTHERN PACIFIC LINES IN TEXAS AND LOUISIANA, at Houston, has been appointed assistant general manager. **J. W. Kraemer,** assistant superintendent, San Antonio division, has been transferred to Ennis, Tex., succeeding **Charles N. Billings,** who has been appointed assistant to chief engineer at Houston. **C. W. Rush,** trainmaster at San Antonio, has been named assistant superintendent at the same point. **R. A. Kornegay,** assistant trainmaster at Alice, Tex., has been appointed trainmaster at San Antonio.

Clarence O. Dales has been appointed office assistant to the general manager of the BOSTON & ALBANY at Boston.

William E. Dillard has been elected general manager of the CENTRAL OF GEORGIA, to succeed the late **R. R. Cummins,** vice-president and general manager. Mr. Dillard, general superintendent since January 1 of this year, has been carrying on duties performed by Mr. Cummins prior to his death (*Railway Age*, March 24). A photograph of Mr. Dillard and a biographical sketch of his career were published in *Railway Age* January 28, page 60.

Kenneth E. Miller, superintendent of the Saratoga-Champlain division of the DELAWARE & HUDSON, at Albany, N. Y., has been appointed general superintendent of transportation, succeeding **William Wallace,** who will retire on April 30, at his own request, after 48 years of service. Mr. Miller was born on October 9, 1909, at Rensselaer, N. Y. He entered railroad service on July 8, 1926, with the D. & H., serving in various clerical positions until 1930. After six months leave of absence with the International Paper Company as traffic representative at Albany, he returned to the D. & H. in the office of superintendent of transportation in December 1930. He was assigned to the Association of American Railroads for special service during 1935. Mr. Miller

Kenneth E. Miller

was appointed supervisor of l.c.l. freight service for the D. & H. in 1938, supervisor of car distribution in 1944, chief clerk to general superintendent of transportation in 1948, and superintendent of the Saratoga-Champlain division in 1950.

Mr. Wallace was born at Brooklyn, N.Y., on August 11, 1884, and entered railway service in 1904 as a trainman with the D. & H. He was later conductor and general yardmaster at Rouses Point, N.Y. He was appointed assistant trainmaster of the Champlain division in 1920 and trainmaster of that division in 1921. Mr. Wallace was transferred to the Saratoga division in 1923 and promoted to superintendent of the Champlain division in 1930, transferring to the Susquehanna division at Oneonta, N.Y., in 1938. He was appointed general superintendent of transportation in 1950.

A. L. Enborg, acting superintendent of the Stratford division of the CANADIAN NATIONAL at Stratford, Ont., has been appointed superintendent of the Capreol division at Capreol, Ont., succeeding **D. M. Trotter,** who has been transferred to Stratford.

As reported in *Railway Age* March 24, **W. J. Rupert** has been appointed superintendent of the St. Thomas division of the CANADIAN NATIONAL, at St. Thomas, Ont. Mr. Rupert was born at Madoc, Ont., and started railroading as a caretaker at Hillier, Ont., in 1922. He later served in various positions

W. J. Rupert

until 1940, when he was appointed supervisor of transportation at Toronto. He is a veteran of World War II, enlisting in 1943 as a lieutenant in the Royal Canadian Corps Signals and being promoted to captain the following year. He was mentioned in dispatches for distinguished service on railways in France. He returned to Canada and to railway service in 1946. In 1947 he became assistant superintendent at Lindsay, Ont., and later in the same year was transferred to Belleville, Ont. He was appointed assistant superintendent at London, Ont., in 1951, and held that position at the time of his recent appointment.

TRAFFIC

The SOUTHERN PACIFIC has announced expansion of its industrial department in Los Angeles. **G. A. Erickson,** industrial agent at San Francisco, has been appointed to the new position of assistant general industrial agent at Los Angeles. **A. Y. Alcorn,** assistant to vice-president, system freight traffic, succeeds Mr. Erickson. **R. A. Houck,** assistant to freight traffic manager at San Francisco, has been appointed to succeed Mr. Alcorn. **D. T. Daggett** has been appointed assistant industrial agent at San Francisco.

William J. Rodgers, general agent of the ATCHISON, TOPEKA & SANTA FE at Kansas City, Mo., has been named passenger traffic manager of the GULF, COLORADO & SANTA FE at Galveston, Tex. He succeeds the late **A. C. Ater. Cyril L. Rich,** division passenger

agent at Dallas, succeeds Mr. Rodgers. **Paul H. Swinney,** division passenger agent at Houston, has been transferred to Dallas, and **Charles W. Axtell,** general traveling passenger agent at Chicago, succeeds Mr. Swinney at Houston.

Edward C. Gengenbach has been appointed general freight and passenger representative of the RUTLAND, at New York, effective May 1.

G. M. Brown, chief clerk to vice-president, traffic, of the CANADIAN NATIONAL, has been appointed assistant to assistant vice-president, freight traffic, at Montreal.

Carl O. Olsen, assistant general passenger agent, Central district, of the SOUTHERN PACIFIC at Oakland, Cal., has been appointed passenger traffic manager at Chicago. He succeeds **Leroy C. Ioas,** who is leaving to engage in other activities. **Henry R. Chinn,** district passenger agent at San Francisco, has been appointed to succeed Mr. Olsen. **Joseph B. Haggerty,** assistant district passenger agent, succeeds Mr. Chinn. Mr. Olsen started with the S. P. as a junior clerk in San Francisco in 1924, and rose through

Carl O. Olsen

various positions in the freight and passenger departments to become assistant general passenger agent at Oakland in 1947.

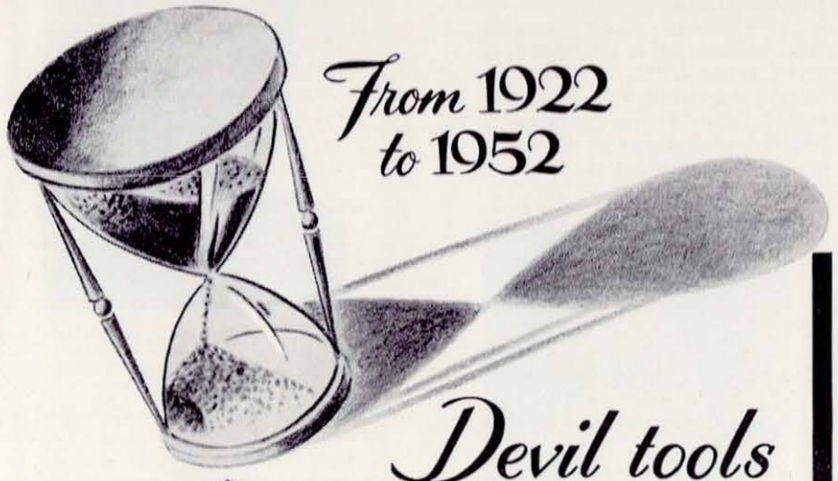
L. A. Veroneau, freight traffic manager—rates of the GRAND TRUNK WESTERN at Chicago, has retired after 50 years of service. Mr. Veroneau began his railroad career in 1902 as office boy for the Canadian National in Montreal. He came to Chicago in 1906 as yard clerk and timekeeper for the G.T.W. and has served there since that time. In 1918 he was appointed chief

L. A. Veroneau

clerk to assistant general freight agent, and two years later became chief of the tariff bureau. He was named assistant general freight agent in 1929. In 1943, he was appointed general freight agent—rates, and he has been freight traffic manager—rates, since 1951.

M. R. Garrison, freight traffic manager of the NEW YORK CENTRAL, has been appointed system general freight traffic manager, succeeding **Arthur E. Baylis,** recently promoted to assistant

(Continued on page 67)



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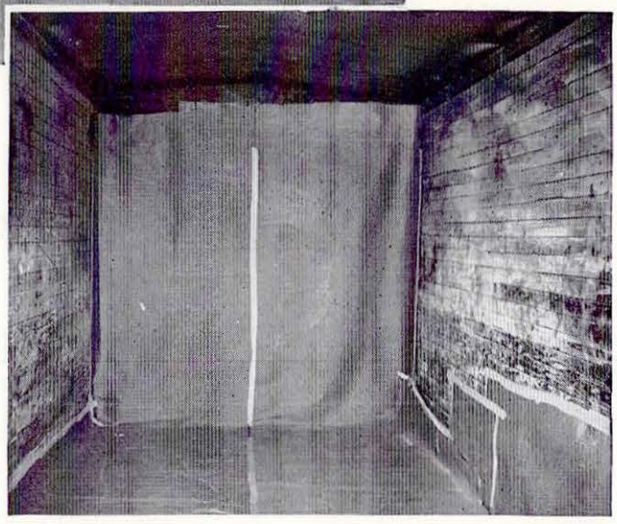

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For additional information, use postcard on pages 59, 60

Township Thanks Railroad

The Fairport, Painesville & Eastern Railroad Company received the following letter from the Board of Trustees of Painesville Township, Ohio:

Gentlemen:

The attention of the Board of Trustees of Painesville Township has been called to the condition of the various railroad crossings in Painesville Township. Their inspection has resulted in a motion passed by the Painesville Township Trustees at their meeting Sept. 13, 1951, formally instructing the Clerk to write a letter to the officials of the Fairport, Painesville & Eastern Railroad, thanking them for their efforts to keep their crossings improved and in safe condition for traffic. Your cooperation merits the appreciation which this letter tries to convey to the officials and others responsible.

Respectfully yours,
Philip W. Baker
Clerk

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The F. P. & E. R.R. Co. wrote us that " . . . all of the crossings referred to were supplied by Koppers. In March, 1948, we purchased our first Koppers Pressure-Creosoted Panel Grade Crossings and subsequently have purchased 15 more. All of these crossings are giving us excellent service. That they are equally satisfactory to the public agencies responsible for road conditions is indicated by the letter from the Township Trustees."

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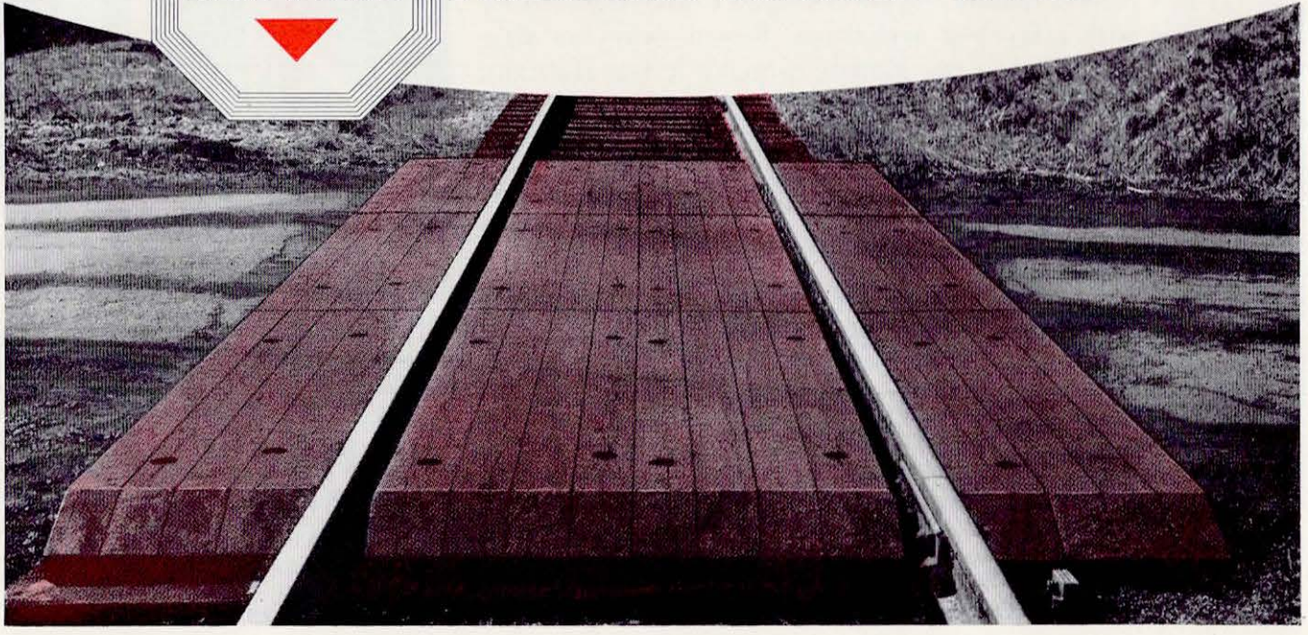

(Continued from page 64)
vice-president, freight traffic (*Railway Age*, January 14). **Harold D. Vail,** assistant freight traffic manager, has been appointed freight traffic manager. Mr. Garrison was born at Haverstraw, N.Y., in 1888. He has been an employee of the Central since 1906, when he began as a clerk at Weehawken, N. J. During World War I he was as-

M. R. Garrison

sistant to the traffic assistant of the regional director of the United States Railroad Administration. He returned to the N.Y.C. in 1920 and was promoted to assistant general freight agent in 1926; to general freight agent in 1929; to assistant to vice-president, freight traffic, in 1941; to assistant freight traffic manager in 1942, and to freight traffic manager January 1, 1951.

Mr. Vail was born at Pawling, N. Y., in 1893, and joined the N.Y.C. there in 1911 as a freight clerk. In 1917 he was transferred to New York as a rate clerk and in 1923 was named city freight agent. He was promoted to

Harold D. Vail

chief perishable agent in 1935; to assistant general eastern freight agent in 1940; general eastern freight agent in 1941; general freight agent in 1947, and assistant freight traffic manager January 1, 1951.

T. L. Elliott, district freight agent of the CANADIAN NATIONAL at Toronto, has been appointed division freight agent at Montreal. **E. DesRosiers,** district freight agent at Sherbrooke, Que., has been transferred to Montreal.

MECHANICAL

J. J. Larson, assistant master mechanic (car) of the NEW YORK CENTRAL at Buffalo, has been appointed general car inspector at New York.

H. H. Magill, acting superintendent of motive power of the Northern district, CHICAGO & NORTH WESTERN, at Chicago, has been appointed superintendent motive power, succeeding **E. J. Crawford,** assigned to other duties.

John S. Wray has been appointed assistant to general superintendent of equipment for the ILLINOIS CENTRAL, at Chicago.

W. A. Vanderland, research engineer for the CANADIAN PACIFIC, has been appointed to the new post of combustion engineer for the Prairie and Pacific regions at Winnipeg.

Henry E. Dyke, master mechanic for SOUTHERN at Selma, Ala., has been transferred to Meridian, Miss.

SPECIAL

Dr. Harry R. Ryan, Jr., has been appointed chief medical officer of the RUTLAND, which has recently reorganized its health service department.

Harry F. Flack, lieutenant of police of the PENNSYLVANIA at Chicago, has been named chief special agent of the CHICAGO, INDIANAPOLIS & LOUISVILLE. Mr. Flack, who first entered railway police work with the Pennsylvania in 1917, will have headquarters at Lafayette, Ind. He succeeds **W. I. Spitler,** who has expressed a desire to relinquish his duties pending contemplated retirement. Mr. Spitler has been given the interim position of special representative.

OBITUARY

John P. Williams, Sr., retired assistant general freight agent of the CHICAGO & NORTH WESTERN, died in Evanston, Ill., on April 10.

Edward C. Hodgskin, chief of the pass bureau of the CANADIAN PACIFIC, died at Montreal on April 15.

George F. Walter, assistant to general manager of the PENNSYLVANIA at New York, died at St. Vincent's Hospital in New York on April 21, after a brief illness.

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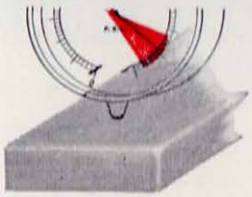

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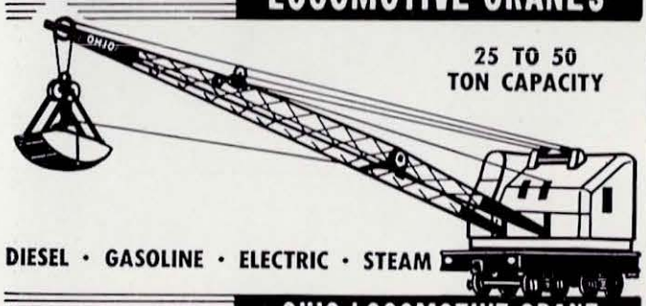

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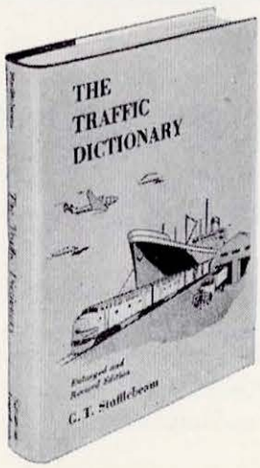

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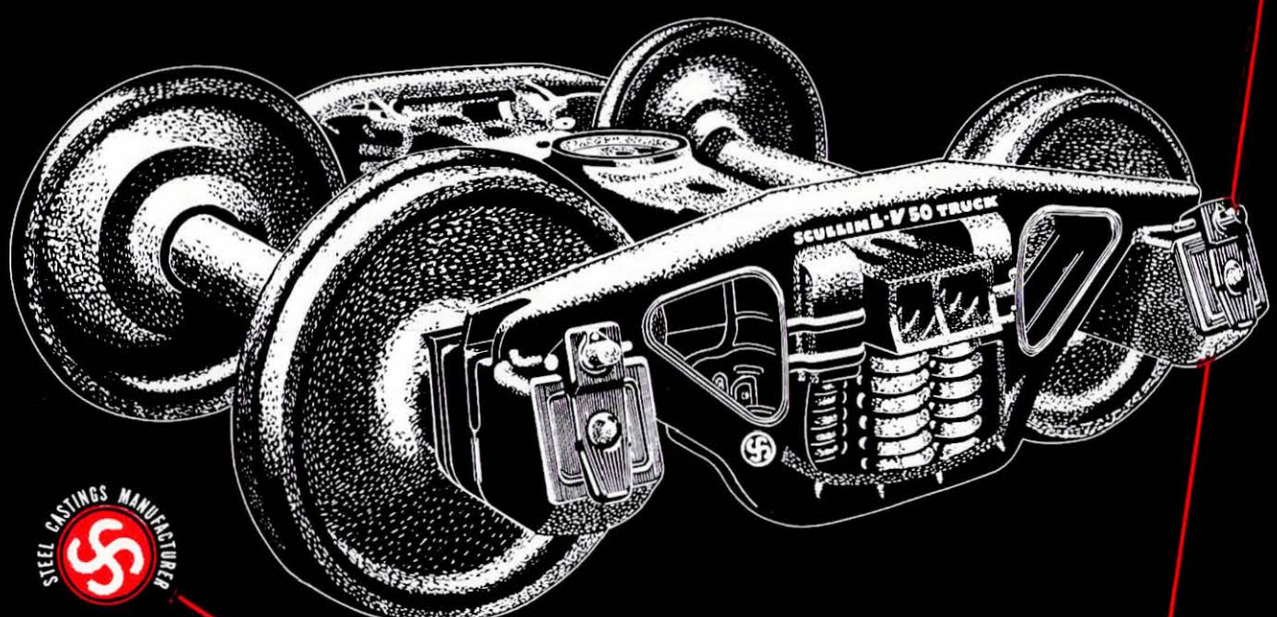

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